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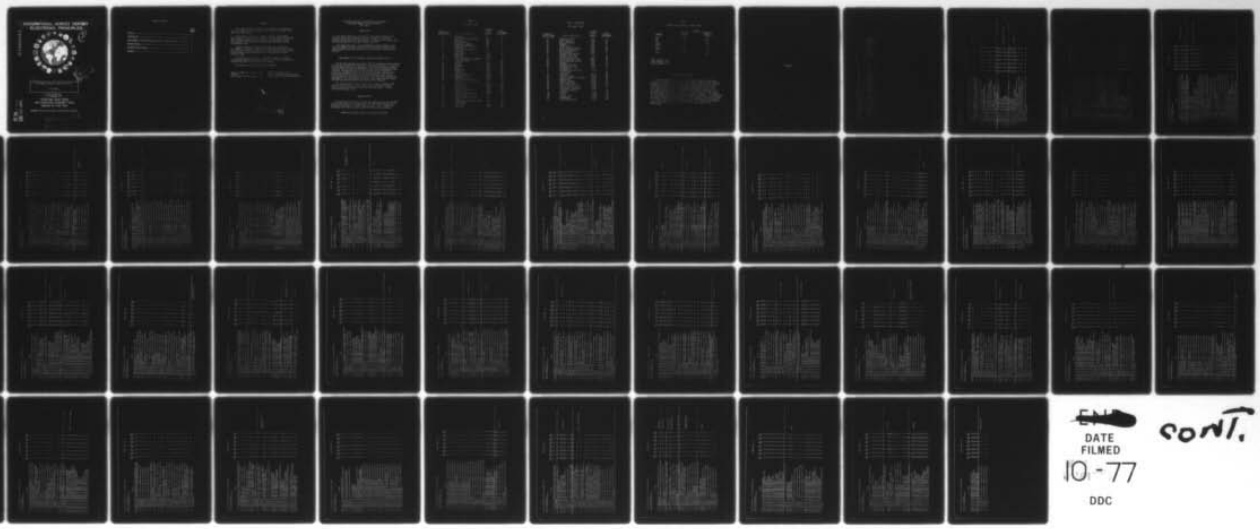

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OCCUPATIONAL SURVEY REPORT
ELECTRONIC PRINCIPLES

Apr-Jun 77.

ELECTRONIC COMPUTER SYSTEMS SPECIALIST

AFSC 30554

AFPT-90-30X-222
15 September 1977

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OCCUPATIONAL SURVEY BRANCH
USAF OCCUPATIONAL MEASUREMENT CENTER
LACKLAND AFB TEXAS 78236

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PREFACE

This report presents a summary of the results of a detailed Air Force Electronic Principles Survey of the Electronic Computer System Specialist, AFSC 30554.

The Electronic Principles Inventory (EPI) was developed by Major Thomas J. O'Connor and Mr. Hendrick W. Ruck and the survey data were analyzed by Major Walter F. Kasper. All are members of the Occupational Survey Branch, USAF Occupational Measurement Center, Lackland AFB, Texas.

Computer programs for analyzing the data were designed by Dr. Raymond E. Christal, Occupational and Manpower Research Division, Air Force Human Resources Laboratory (AFHRL), and were written by the Project Analysis and Programming Branch, Computational Sciences Division, AFHRL.

Distribution of this report is made upon request to the USAF Occupational Measurement Center, attention of the Chief, Occupational Survey Branch (OMY), Lackland AFB, Texas 78236.

This report has been reviewed and is approved.

JAMES A. TURNER, JR., Colonel, USAF
Commander
USAF Occupational Measurement Center

WALTER E. DRISKILL, Ph.D.
Chief, Occupational Survey Branch
USAF Occupational Measurement Center

ELECTRONIC PRINCIPLES OCCUPATIONAL SURVEY REPORT
ELECTRONIC COMPUTER SYSTEMS SPECIALIST
AFSC 30554

INTRODUCTION

This report summarizes the results of the administration of the Electronic Principles Inventory to airmen assigned as Electronic Computer Systems Specialist (AFSC 30554). The data for this report were collected during the period April through June 1977.

This report describes: (1) development and administration of the survey instrument; and (2) electronic principles used by DAFSC 5-skill level personnel both CONUS and overseas and assigned to selected major commands.

DEVELOPMENT OF THE ELECTRONIC PRINCIPLES INVENTORY (EPI)

The EPI was developed by personnel from the Occupational Survey Branch who were well qualified in theoretical physics and electronics, as well as in task analysis and survey development. Over 300 maintenance personnel from SAC, TAC, ADC, MAC, and AFCS participated in the development of the inventory. Representing the five ATC training centers, electronics experts who averaged 12 years of maintenance experience and four years of electronic principles instruction experience spent several weeks refining the EPI. In addition, personnel at the Electrical Engineering Department of the USAF Academy and the Air Force Human Resources Laboratory were consulted during the development of the inventory.

The final version of the EPI used in this survey contained 1,257 items in 62 subject matter areas covering all electronic principles training given at the five ATC technical training centers. Table 1 lists the 62 subject areas.

ADMINISTRATION

The Electronic Principles Inventory was administered by mail to AFSC 30554 airmen worldwide. Responses from 350 individuals represented 46 percent of the total of all AFSC 30554 personnel. Table 2 shows the percentage distribution by major command of the survey incumbents.

TABLE 1

EPI SUBJECT AREAS

SEQUENCE OF SUBJECT AREAS	SUBJECT AREA TITLE	BEGINNING ITEM NUMBER	GPSUM PAGE NUMBER
1	MATHEMATICS	A1	2
2	DIRECT CURRENT AND VOLTAGE	A15	2
3	RESISTANCE	A24	2
4	MULTIMETER USES	B52	3
5	ALTERNATING CURRENT	B61	4
6	INDUCTORS AND INDUCTIVE REACTANCE	B67	4
7	CAPACITORS AND CAPACITIVE REACTANCE	C92	5
8	TRANSFORMERS	C128	6
9	MAGNETISM	C171	7
10	RCL CIRCUITS	D185	8
11	SERIES AND PARALLEL RESONANCE (TIME CONSTANTS)	D229	10
12	FILTERS	D239	10
13	COUPLING	E261	11
14	SOLDERING	E273	11
15	RELAYS	E295	12
16	MICROPHONES	F314	12
17	SPEAKERS	F327	13
18	OSCILLOSCOPES	F342	13
19	SEMICONDUCTOR DIODES	G354	13
20	TRANSISTORS	G404	15
21	TRANSISTOR AMPLIFIERS	G428	16
22	SOLID-STATE SPECIAL PURPOSE DEVICES	H477	19
23	POWER SUPPLIES	H483	19
24	OSCILLATORS	H512	19
25	MULTIVIBRATORS	I539	20
26	LIMITERS AND CLAMPERS	I555	21
27	ELECTRON TUBES	I565	21
28	ELECTRON TUBE AMPLIFIERS AND CIRCUITS	J609	22
29	SPECIAL PURPOSE ELECTRON TUBES	J616	23
30	HETERODYNING, MODULATION, AND DEMODULATION	J632	23
31	AM SYSTEMS	K638	23
32	FM SYSTEMS	K666	24

TABLE 1 (CONTINUED)

EPI SUBJECT AREAS

SEQUENCE OF SUBJECT AREAS	SUBJECT AREA TITLE	BEGINNING ITEM NUMBER	GPSUM PAGE NUMBER
33	NUMBERING SYSTEMS	K685	25
34	LOGIC FUNCTIONS	L695	25
35	BOOLEAN EQUATIONS	L708	26
36	COUNTERS	L733	27
37	TIMING CIRCUITS	M757	27
38	USE OF SIGNAL GENERATORS	M769	28
39	MOTORS AND GENERATORS	M779	28
40	METER MOVEMENTS	N808	29
41	SATURABLE REACTORS AND MAGNETIC AMPLIFIERS	N818	29
42	WAVESHAPING CIRCUITS	N834	30
43	SINGLE SIDEBAND SYSTEMS	0845	30
44	PULSE MODULATION SYSTEMS	0875	31
45	ANTENNAS	0914	32
46	TRANSMISSION LINES	P953	34
47	WAVEGUIDES AND CAVITY RESONATORS	P984	35
48	MICROWAVE AMPLIFIERS AND OSCILLATORS	P1034	37
49	REGISTERS	Q1110	39
50	STORAGE DEVICES	Q1117	40
51	DIGITAL TO ANALOG CONVERTERS	Q1126	40
52	PHANTASTRONS	Q1140	41
53	SCHMITT TRIGGERS	R1141	41
54	CABLE FABRICATION	R1144	41
55	INPUT/OUTPUT DEVICES	S1146	41
56	PHOTO SENSITIVE DEVICES	S1149	41
57	SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)	S1150	41
58	INFRARED	T1159	41
59	LASERS	T1186	42
60	DISPLAY TUBES	T1220	43
61	PROGRAMMING	U1234	43
62	DB AND POWER RATIOS	U1255	44

TABLE 2

COMMAND REPRESENTATION OF SURVEY SAMPLE

	30554	
COMMAND	PERCENT ASSIGNED	PERCENT OF SAMPLE
AFCS	37	33
ADC	27	30
TAC	11	11
USAFE	7	11
USAFSS	7	4
ATC	6	3
OTHER	5	8
TOTAL	100	100

Total Assigned - 766
Total Sampled - 350
Percent Sampled - 46

PRESENTATON OF RESULTS

Personnel responded "yes" or "no" to the 1,257 electronic principles questions as related to their present job. A Group Summary (GPSUM) computer printout is provided in the Appendix portion of this report. Page 1 of the GPSUM lists the seven selected groups identified for this report. Pages 2-44 show the percentage of the incumbents responding to the EPI items. The computer program results display the percent members answering "yes" to the subject area questions. The reader can locate a specific subject area by referring to the Appendix page number as listed in Table 1. For example, the Transformers area results are given on page 6 of the GPSUM. The percentage of survey respondents indicating use of specific electronic principles ranged from high in areas such as Resistance (pp. 2-3) and Registers (pp. 39-40) to low in areas such as Transmission Lines (pp. 34-35). Additional AFSC 305X4 data can be obtained upon request to the Chief, Occupational Survey Branch (OMY).

APPENDIX

TABULATION OF ELECTRONIC PRINCIPLES UTILIZATION DATA FOR SELECTED GROUPS
IN THE 30554 CAREER FIELD.

REPORTS ON THE FOLLOWING GROUPS WERE REQUESTED

GROUP IDENTITY =	SPC201	ALL AIRMEN DAFSC 30554	CONTAINING 350 MEMBERS.
GROUP IDENTITY =	SPC202	ALL AIRMEN DAFSC 30554 STATIONED IN CONUS	CONTAINING 276 MEMBERS.
GROUP IDENTITY =	SPC203	ALL AIRMEN DAFSC 30554 STATIONED OVERSEAS	CONTAINING 74 MEMBERS.
GROUP IDENTITY =	SPC204	ALL AIRMEN DAFSC 30554 ASSIGNED TO ADC	CONTAINING 105 MEMBERS.
GROUP IDENTITY =	SPC205	ALL AMN DAFSC 30554 ASSIGNED TO AFCS	CONTAINING 114 MEMBERS.
GROUP IDENTITY =	SPC206	ALL AMN DAFSC 30554 ASSIGNED TO TAC	CONTAINING 37 MEMBERS.
GROUP IDENTITY =	SPC207	ALL AMN DAFSC 30554 ASSIGNED TO USAFSS	CONTAINING 14 MEMBERS.

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
A	1	A1-01 IN YOUR PRESENT JOB, DO YOU USE INSTRUMENTS, SUCH AS METERS OR OSCILLOSCOPES, IN WHICH IT IS NECESSARY TO AMPLIFY OR ATTENUATE VOLTAGE, RESISTANCE, ETC., BY POWERS OF 10.	89	85	78	93	75	86	93	
A	2	A1-02 DO YOU USE PUBLICATIONS, SUCH AS A TECHNICAL ORDERS OR MAINTENANCE MANUALS, IN WHICH IT IS NECESSARY FOR YOU TO MULTIPLY OR DIVIDE BY A POWER OF 10 BEFORE YOU CAN APPLY THE INFORMATION FROM THE PUBLICATION IN A USEFUL WAY ON THE JOB.	42	42	43	44	33	46	64	MATHEMATICS
A	3	A1-03 DO YOU REARRANGE AND SOLVE FORMULAS OR EQUATIONS.	36	37	30	34	33	49	43	
A	4	A1-04 DO YOU CALCULATE THE SQUARE ROOT OF A QUANTITY.	8	8	9	7	7	8	7	
A	5	A1-05 DO YOU SOLVE FOR UNKNOWN QUANTITIES.	26	27	22	25	24	32	36	
A	6	A1-06 DO YOU CONVERT NUMBERS TO LOGARITHMS.	4	4	4	3	5	8	0	
A	7	A1-07 DO YOU USE LOGARITHM TABLES IN ANY TYPE OF CALCULATIONS.	4	4	4	3	4	8	0	
A	8	A1-08 DO YOU SOLVE QUADRATIC EQUATIONS.	5	4	7	3	8	5	7	
A	9	A1-09 DO YOU USE THE NATURAL SYSTEM OF LOGARITHMS.	2	1	4	0	3	3	0	
A	10	A1-10 DO YOU PERFORM CALCULATIONS ON VECTOR QUANTITIES.	8	8	8	10	4	14	0	
A	11	A1-11 DO YOU WORK WITH TRIGONOMETRIC FUNCTIONS SUCH AS SINE, COSINE, OR TANGENT.	9	9	8	13	4	16	0	
A	12	A1-12 DO YOU DETERMINE AREAS OF PLANE FIGURES.	4	4	7	6	4	3	0	
A	13	A1-13 DO YOU SOLVE OR USE SIMULTANEOUS EQUATIONS.	6	5	9	5	5	8	7	
A	14	A1-14 DO YOU SOLVE OR USE PROPORTIONS.	15	13	20	14	14	16	7	
A	15	A2-01 DO YOU USE THE TERM VOLTAGE OR VOLT (V).	91	93	84	97	87	92	100	
A	16	A2-02 DO YOU USE THE TERM ELECTROMOTIVE FORCE (EMF).	33	33	31	35	30	49	14	
A	17	A2-03 DO YOU USE THE TERM OHM.	89	91	81	97	83	89	100	
A	18	A2-04 DO YOU USE THE TERM ION.	12	11	19	12	12	14	7	
A	19	A2-05 DO YOU USE THE TERM DYNE.	7	7	8	9	5	11	0	
A	20	A2-06 DO YOU USE THE TERM AMPERE.	85	88	76	91	81	92	86	DIRECT CURRENT AND VOLTAGE
A	21	A2-07 DO YOU USE THE TERM NEUTRON.	12	12	15	12	13	19	0	
A	22	A2-08 DO YOU USE THE TERM COULOMB.	16	16	19	15	17	24	7	
A	23	A2-09 DO YOU USE THE TERM PROTON.	13	13	15	12	15	19	0	
A	24	A3-01 DO YOU WORK WITH RESISTORS IN YOUR PRESENT JOB.	79	80	76	90	68	84	100	
A	25	A3-02 DO YOU INSPECT RESISTORS.	80	82	76	90	77	78	93	
A	26	A3-03 DO YOU CLEAN RESISTORS.	65	66	64	75	62	62	43	
A	27	A3-04 DO YOU ADJUST RESISTORS.	79	80	77	90	76	76	79	
A	28	A3-05 DO YOU CHECK OHMIC VALUE OF RESISTORS.	82	84	76	91	81	78	93	RESISTANCE
A	29	A3-06 DO YOU REMOVE OR REPLACE RESISTORS.	77	79	68	86	75	84	100	
A	30	A3-07 DO YOU USE OR REFER TO TEMPERATURE COEFFICIENTS FOR RESISTORS ON ANY TASKS YOU PERFORM.	19	20	19	22	19	32	0	
A	31	A3-08 DO YOU USE OR REFER TO RESISTOR SYMBOLS SUCH AS FIXED RESISTOR SYMBOLS OR TAPPED RESISTOR SYMBOLS.	79	81	72	91	73	81	93	
A	32	A3-09 DO YOU IDENTIFY OR CLASSIFY THE RESISTORS YOU WORK WITH AS CARBON, FIXED WIRE, SLIDE TAP, RHEOSTAT, OR POTENTIOMETER.	78	78	76	84	74	81	93	
A	33	A3-10 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE OHMIC VALUE OF RESISTANCE.	77	80	68	85	78	84	100	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	JY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
A	34 A3-11 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE TOLERANCE.	72	74	66	79	71	76	100	
A	35 A3-12 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE FAILURE RATE.	27	29	22	28	30	38	21	
A	36 A3-13 DO YOU MAKE DECISIONS IN WHICH YOU MUST DETERMINE HOW TWO OR MORE BATTERIES MUST BE CONNECTED TOGETHER TO ACHIEVE A SPECIFIC VOLTAGE.	15	16	12	15	12	24	14	
A	37 A3-14 DO YOU USE OR REFER TO THE SCHEMATIC SYMBOLS WHICH REPRESENT BATTERIES, FUSES, CONDUCTORS, LAMPS, OR SWITCHES	83	84	76	92	80	89	100	
A	38 A3-15 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES RESISTIVE CIRCUITS.	38	41	27	40	44	46	29	
A	39 A3-16 DO YOU CALCULATE TOTAL CURRENT FOR SERIES RESISTIVE CIRCUITS.	36	36	26	38	42	43	21	
A	40 A3-17 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES RESISTIVE CIRCUITS.	40	43	28	44	45	46	43	
A	41 A3-18 DO YOU CALCULATE POWER DISSIPATION FOR SERIES RESISTIVE CIRCUITS.	25	27	20	27	29	35	14	
A	42 A3-19 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES PARALLEL RESISTIVE CIRCUITS.	36	38	28	38	41	49	29	
A	43 A3-20 DO YOU CALCULATE TOTAL CURRENT FOR SERIES PARALLEL RESISTIVE CIRCUITS.	34	37	26	37	39	41	21	
A	44 A3-21 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	37	39	27	39	39	46	29	
A	45 A3-22 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	32	34	24	32	38	32	21	
A	46 A3-23 DO YOU CALCULATE POWER DISSIPATION FOR SERIES PARALLEL RESISTIVE CIRCUITS.	25	26	20	25	27	35	14	
A	47 A3-24 DO YOU CALCULATE TOTAL RESISTANCE FOR PARALLEL RESISTIVE CIRCUITS.	36	39	27	37	42	49	29	
A	48 A3-25 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RESISTIVE CIRCUITS.	34	37	24	35	40	43	21	
A	49 A3-26 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR PARALLEL RESISTIVE CIRCUITS.	35	36	26	37	39	43	29	
A	50 A3-27 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR PARALLEL RESISTIVE CIRCUITS.	32	34	23	32	39	35	21	
A	51 A3-28 DO YOU CALCULATE POWER DISSIPATION FOR PARALLEL RESISTIVE CIRCUITS.	24	25	19	24	27	38	14	
B	52 B1-01 DO YOU MEASURE RESISTANCE.	86	88	78	94	85	86	100	
B	53 B1-02 DO YOU REPAIR OHMMETERS.	8	8	5	11	9	5	0	
B	54 B1-03 DO YOU MEASURE VOLTAGE.	90	92	82	97	88	92	100	
B	55 B1-04 DO YOU REPAIR VOLTMETERS.	6	5	8	7	7	5	0	MULTIMETER USES
B	56 B1-05 DO YOU REPAIR AMMETERS.	6	5	8	7	7	8	0	
B	57 B1-06 DO YOU MEASURE CURRENT.	81	84	69	92	82	81	71	
B	58 B1-07 DO YOU USE MULTIMETERS.	89	90	82	96	88	92	100	
B	59 B1-08 DO YOU DIRECTLY USE A QUANTITY OF CHARGE CALLED A COULOMB.	5	5	5	3	7	8	0	
B	60 B1-09 DO YOU READ SCHEMATICS.	89	92	81	92	89	92	93	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
B	61	B2-01 DO YOU USE OR REFER TO THE TERM EFFECTIVE VOLTAGE (RMS).	58	58	58	54	58	68	64	
B	62	B2-02 DO YOU USE OR REFER TO THE TERM PEAK TO PEAK VOLTAGE.	80	83	69	90	77	78	86	ALTERNATING CURRENT
B	63	B2-03 DO YOU USE OR REFER TO THE TERM AVERAGE VOLTAGE (DC).	67	70	55	78	64	65	64	
B	64	B2-04 DO YOU USE OR REFER TO THE TERM WAVE LENGTH.	52	57	36	54	55	70	36	
B	65	B2-05 DO YOU USE OR REFER TO THE TERM FREQUENCY.	82	86	68	88	77	86	79	
B	66	B2-06 DO YOU USE OR REFER TO THE TERM INSTANTANEOUS VALUE.	21	21	22	23	18	30	7	
B	67	B3-01 DO YOU WORK WITH INDUCTORS OR CIRCUITS CONTAINING INDUCTORS, CHOKES, OR CHOKE COILS IN YOUR PRESENT JOB.	47	47	46	51	45	57	57	
B	68	B3-02 DO YOU INSPECT INDUCTORS.	44	44	42	47	43	57	36	
B	69	B3-03 DO YOU CLEAN INDUCTORS.	35	35	34	39	34	43	21	
B	70	B3-04 DO YOU ADJUST INDUCTORS.	32	31	35	33	29	49	14	
B	71	B3-05 DO YOU REMOVE OR REPLACE INDUCTORS.	43	44	42	46	46	57	36	INDUCTORS AND INDUCTIVE REACTANCE
B	72	B3-06 DO YOU USE OR REFER TO INDUCTANCE.	37	39	28	42	38	46	21	
B	73	B3-07 DO YOU USE OR REFER TO HENRIES.	27	28	26	30	31	41	7	
B	74	B3-08 DO YOU USE OR REFER TO INDUCTIVE REACTANCE.	23	24	22	25	25	38	7	
B	75	B3-09 DO YOU USE OR REFER TO COPPER LOSS IN INDUCTORS.	4	4	4	6	5	3	0	
B	76	B3-10 DO YOU USE OR REFER TO HYSTERESIS LOSS IN INDUCTORS.	12	12	11	12	16	14	0	
B	77	B3-11 DO YOU USE OR REFER TO EDDY CURRENT LOSS IN INDUCTORS	8	7	11	9	11	5	0	
B	78	B3-12 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTANCE IS PROPORTIONAL TO THE SQUARE OF THE NUMBER OF TURNS OF THE COIL.	6	6	7	6	10	8	0	
B	79	B3-13 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE CROSS SECTIONAL AREA OF THE CORE.	6	5	8	4	10	11	0	
B	80	B3-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS INVERSELY PROPORTIONAL TO ITS LENGTH.	5	5	5	4	6	11	0	
B	81	B3-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE PERMEABILITY OF THE CORE MATERIAL.	6	6	8	5	9	14	0	
B	82	B3-16 DO YOU CALCULATE INDUCTANCE FOR PARTICULAR INDUCTORS USING FORMULAS.	6	6	5	7	8	8	0	
B	83	B3-17 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTANCE IN SERIES.	8	8	7	10	9	14	0	
B	84	B3-18 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN PARALLEL.	8	9	7	10	9	16	0	
B	85	B3-19 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN SERIES-PARALLEL CIRCUITS.	8	8	7	10	9	14	0	
B	86	B3-20 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LEADS VOLTAGE IN AC INDUCTOR CIRCUITS.	13	14	11	14	17	19	0	
B	87	B3-21 DO YOU CALCULATE INDUCTIVE REACTANCE.	8	8	11	9	10	14	0	
B	88	B3-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTIVE REACTANCE IS DIRECTLY PROPORTIONAL TO FREQUENCY.	11	11	11	12	11	19	0	
B	89	B3-23 DO YOU WORK WITH POWER INDUCTORS.	32	32	32	34	32	43	29	
B	90	B3-24 DO YOU WORK WITH AUDIO FREQUENCY INDUCTORS.	10	11	8	14	9	14	7	
B	91	B3-25 DO YOU WORK WITH RADIO FREQUENCY INDUCTORS.	11	11	11	15	7	19	7	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

CAPACITORS AND CAPACITIVE REACTANCE

			SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207
		CY-TSK							
C	92	C1-01 DO YOU WORK WITH CAPACITORS OR CIRCUITS CONTAINING CAPACITORS IN YOUR PRESENT JOB.	79	79	78	86	75	70	100
C	93	C1-02 DO YOU INSPECT CAPACITORS.	79	80	74	87	78	81	86
C	94	C1-03 DO YOU CLEAN CAPACITORS.	62	63	58	70	63	57	50
C	95	C1-04 DO YOU ADJUST CAPACITORS.	57	57	57	61	47	76	57
C	96	C1-05 DO YOU TEST CAPACITORS.	66	70	54	66	70	73	71
C	97	C1-06 DO YOU DISCHARGE CAPACITORS.	70	72	61	78	67	73	79
C	98	C1-07 DO YOU REMOVE OR REPLACE CAPACITORS.	76	80	62	87	76	78	93
C	99	C1-08 DO YOU USE OR REFER TO DISTRIBUTED CAPACITANCE.	12	14	12	14	12	16	7
C	100	C1-09 DO YOU USE OR REFER TO ORBITAL STRESS OF ELECTRONS IN A DIELECTRIC.	3	3	4	3	4	8	0
C	101	C1-10 DO YOU USE OR REFER TO FARADS, MICROFARADS, OR MICROFARADS.	73	74	69	79	74	73	86
C	102	C1-11 DO YOU USE OR REFER TO CAPACITANCE.	71	73	66	76	72	70	79
C	103	C1-12 DO YOU USE OR REFER TO DIELECTRIC CONSTANT	13	13	14	11	16	19	7
C	104	C1-13 DO YOU USE OR REFER TO WORKING VOLTAGE RATING OF CAPACITORS	58	60	51	57	65	67	71
C	105	C1-14 DO YOU USE OR REFER TO CAPACITIVE REACTANCE	25	26	19	27	25	35	36
C	106	C1-15 DO YOU USE OR REFER TO CAPACITOR COLOR CODES	34	35	30	44	27	46	29
C	107	C1-16 DO YOU WORK WITH CAPACITORS IN DC CIRCUITS	82	83	80	92	78	78	100
C	108	C1-17 DO YOU WORK WITH CAPACITORS IN AC CIRCUITS	73	74	70	82	70	73	64
C	109	C1-18 DO YOU WORK WITH CAPACITORS IN CIRCUITS WITH BOTH DC AND AC	71	72	64	76	70	76	57
C	110	C1-19 DO YOU WORK WITH CAPACITORS IN DON'T REMEMBER WHICH CIRCUITS	16	17	12	24	10	24	21
C	111	C1-20 DO YOU CALCULATE CAPACITANCE FOR PARTICULAR CAPACITORS USING FORMULAS	10	9	11	11	8	16	0
C	112	C1-21 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS DIRECTLY PROPORTIONAL TO THE DIELECTRIC CONSTANT	5	5	5	9	5	8	0
C	113	C1-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS INVERSELY PROPORTIONAL TO THE DIELECTRIC THICKNESS	5	5	7	7	5	8	0
C	114	C1-23 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES	17	18	14	22	17	24	7
C	115	C1-24 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN PARALLEL	17	18	14	21	17	22	7
C	116	C1-25 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES-PARALLEL CIRCUITS	15	15	14	17	14	22	7
C	117	C1-26 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT DOES NOT FLOW THROUGH CAPACITORS, IT ONLY APPEARS TO DO SO	25	25	22	25	23	30	29
C	118	C1-27 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LEADS VOLTAGE IN AC CAPACITOR CIRCUITS	19	21	12	24	18	27	7
C	119	C1-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITIVE REACTANCE IS INVERSELY PROPORTIONAL TO FREQUENCY	14	14	11	16	13	27	0
C	120	C1-29 DO YOU CALCULATE CAPACITIVE REACTANCE	9	9	8	11	9	16	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
C 121	C1-30 DO YOU WORK WITH ROTOR-STATOR (VARIABLE) CAPACITORS	41	39	45	44	34	51	50	
C 122	C1-31 DO YOU WORK WITH COMPRESSION (TRIMMER) CAPACITORS	45	42	57	46	30	59	29	
C 123	C1-32 DO YOU WORK WITH ELECTROLYTIC (FIXED) CAPACITORS	75	75	76	78	75	70	93	
C 124	C1-33 DO YOU WORK WITH PAPER (FIXED) CAPACITORS	65	66	62	70	64	68	71	
C 125	C1-34 DO YOU WORK WITH MICA (FIXED) CAPACITORS	66	64	65	69	64	68	86	
C 126	C1-35 DO YOU WORK WITH CERAMIC (FIXED) CAPACITORS	70	71	69	73	69	68	79	
C 127	C1-36 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF CAPACITORS	18	18	20	20	15	19	29	
C 128	C2-01 DO YOU WORK WITH TRANSFORMERS IN YOUR PRESENT JOB	61	63	57	70	59	62	50	
C 129	C2-02 DO YOU INSPECT TRANSFORMERS	61	62	58	68	60	62	50	
C 130	C2-03 DO YOU CLEAN TRANSFORMERS	53	53	51	64	51	46	36	
C 131	C2-04 DO YOU ADJUST TRANSFORMERS	28	29	26	38	24	32	7	TRANSFORMERS
C 132	C2-05 DO YOU TROUBLESHOOT TRANSFORMERS	49	50	49	51	50	62	50	
C 133	C2-06 DO YOU REMOVE OR REPLACE COMPLETE TRANSFORMERS	59	59	57	62	61	65	50	
C 134	C2-07 DO YOU REMOVE OR REPLACE TRANSFORMER PARTS, SUCH AS THE PRIMARY WINDING	6	7	5	8	6	11	0	
C 135	C2-08 DO YOU MAKE A DISTINCTION BETWEEN MUTUAL INDUCTION AND MUTUAL INDUCTANCE (M)	5	5	3	4	7	8	0	
C 136	C2-09 DO YOU USE THE SYMBOL FOR MUTUAL INDUCTANCE, M	3	3	4	2	5	3	0	
C 137	C2-10 DO YOU REFER TO OR USE THE COEFFICIENT OF COUPLING WHEN WORKING WITH TRANSFORMERS	3	3	3	2	5	5	0	
C 138	C2-11 DO YOU CALCULATE TURNS RATIOS FOR TRANSFORMERS USING CURRENT OR VOLTAGE RATIOS	7	7	9	5	10	14	0	
C 139	C2-12 DO YOU REFER TO REFLECTED IMPEDANCE WHEN WORKING WITH TRANSFORMERS	5	5	5	4	8	5	0	
C 140	C2-13 DO YOU CALCULATE IMPEDANCE INTERACTIONS FOR TRANSFORMERS	3	4	3	3	4	5	0	
C 141	C2-14 DO YOU WORK WITH AUTOTRANSFORMERS	16	15	20	17	14	19	21	
C 142	C2-15 DO YOU WORK WITH POWER TRANSFORMERS	56	57	55	62	55	57	43	
C 143	C2-16 DO YOU WORK WITH AUDIO TRANSFORMERS	10	9	12	10	7	8	14	
C 144	C2-17 DO YOU WORK WITH RADIO FREQUENCY TRANSFORMERS	8	7	11	9	8	8	0	
C 145	C2-18 DO YOU WORK WITH DON'T REMEMBER WHAT TYPE OF TRANSFORMERS	16	16	14	19	15	22	21	
C 146	C2-19 DO YOU CHECK TRANSFORMERS FOR OPEN WINDINGS BY MEASURING RESISTANCE	52	52	54	52	54	59	50	
C 147	C2-20 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING RESISTANCE	49	49	49	51	48	57	50	
C 148	C2-21 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING OUTPUT VOLTAGES	46	46	46	50	43	57	43	
C 149	C2-22 DO YOU MEASURE RESISTANCE OF TRANSFORMER WINDINGS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO	16	17	12	20	15	24	7	
C 150	C2-23 DO YOU MEASURE OUTPUT VOLTAGE OF TRANSFORMERS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO	24	25	22	29	25	35	7	
C 151	C2-24 DO YOU REFER TO BASIC TRANSFORMER SCHEMATIC SYMBOLS FOR TRANSFORMERS	61	63	55	67	61	65	36	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
C 152	C2-25 DO YOU REFER TO MULTIPLE SECONDARY-WINDINGS SCHEMATIC SYMBOLS FOR TRANSFORMERS	49	51	45	53	49	62	36	
C 153	C2-26 DO YOU REFER TO MULTIPLE TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS	52	53	49	58	52	57	36	
C 154	C2-27 DO YOU REFER TO CENTER TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS	58	59	53	64	57	65	36	
C 155	C2-28 DO YOU REFER TO AIR CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS	31	32	26	42	27	30	7	
C 156	C2-29 DO YOU REFER TO IRON CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS	40	42	30	50	37	46	7	
C 157	C2-30 DO YOU REFER TO COMBINATIONS OF THE ABOVE SCHEMATIC SYMBOLS FOR TRANSFORMERS	43	43	45	50	41	41	43	
C 158	C2-31 DO YOU DETERMINE PHASE RELATIONSHIPS BETWEEN SECONDARY AND PRIMARY VOLTAGES OF TRANSFORMERS USING SCHEMATIC SYMBOLS	28	29	23	33	23	51	21	
C 159	C2-32 DO YOU DETERMINE OR REFER TO THE TYPE OF CORE IN TRANSFORMERS YOU WORK WITH	17	18	11	27	16	11	0	
C 160	C2-33 DO YOU REFER TO OR USE THE GENERAL RULE THAT THE TURNS RATIO OF A TRANSFORMER IS EQUAL TO THE VOLTAGE RATIO	15	16	14	15	18	22	0	
C 161	C2-34 DO YOU USE OR REFER TO STEP-UP OR STEP-DOWN RATIOS FOR TRANSFORMERS	25	26	23	26	30	30	21	
C 162	C2-35 DO YOU CALCULATE VOLTAGE RATIOS FOR TRANSFORMERS USING TURNS RATIOS	10	10	11	10	11	16	0	
C 163	C2-36 DO YOU CALCULATE CURRENT RATIOS FOR TRANSFORMERS USING TURNS RATIOS	7	7	7	7	9	11	0	
C 164	C2-37 DOES YOUR JOB INVOLVE ANY TASKS DEALING WITH THREE PHASE TRANSFORMERS	25	26	19	35	13	43	0	
C 165	C2-38 DO YOU INSPECT THREE PHASE TRANSFORMERS	23	23	22	31	11	41	0	
C 166	C2-39 DO YOU CLEAN OR LUBRICATE THREE PHASE TRANSFORMERS	16	17	14	26	9	22	0	
C 167	C2-40 DO YOU ADJUST THREE PHASE TRANSFORMERS	10	11	7	20	5	8	0	
C 168	C2-41 DO YOU TROUBLESHOOT THREE PHASE TRANSFORMERS	19	20	18	28	11	30	0	
C 169	C2-42 DO YOU REMOVE OR REPLACE COMPLETE THREE PHASE TRANSFORMERS	21	21	20	30	11	32	0	
C 170	C2-43 DO YOU REMOVE OR REPLACE THREE PHASE TRANSFORMER PARTS SUCH AS WINDINGS	4	4	4	7	4	3	0	
C 171	C3-01 DO YOU USE OR REFER TO PERMANENT MAGNETS	23	23	22	27	23	30	0	
C 172	C3-02 DO YOU USE OR REFER TO TEMPORARY MAGNETS	31	32	27	40	29	38	21	
C 173	C3-03 DO YOU USE OR REFER TO RETENTIVITY OF MAGNETIC MATERIALS	19	18	23	21	18	22	21	MAGNETISM
C 174	C3-04 DO YOU USE OR REFER TO RELUCTANCE OF MAGNETIC MATERIALS	14	13	18	14	16	14	7	
C 175	C3-05 DO YOU USE OR REFER TO PERMEABILITY OF MAGNETIC MATERIALS	18	18	18	21	18	22	0	
C 176	C3-06 DO YOU USE OR REFER TO RESIDUAL MAGNETISM	25	26	22	29	27	32	29	
C 177	C3-07 DO YOU USE OR REFER TO MAGNETIC LINES OF FORCE OR FLUX	31	32	26	41	27	27	43	
C 178	C3-08 DO YOU USE OR REFER TO WEBER'S THEORY OF MAGNETISM	7	7	8	8	9	8	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
C 179	C3-09 DO YOU USE OR REFER TO DOMAIN THEORY OF MAGNETISM	7	7	11	8	8	5	0	
C 180	C3-10 DO YOU USE OR REFER TO MAGNETIC INDUCTION	23	24	19	32	19	27	14	
C 181	C3-11 DO YOU USE OR REFER TO FLUX DENSITY	25	26	23	38	20	24	43	
C 182	C3-12 DO YOU USE OR REFER TO THE GENERAL RULE THAT FOR MAGNETIC POLES, LIKE POLES REPEL AND UNLIKE POLES ATTRACT	34	36	24	33	41	35	14	
C 183	C3-13 DO YOU USE THE LEFT HAND THUMB RULE TO FIND THE DIRECTION OF MAGNETIC FIELDS ABOUT STRAIGHT WIRES	19	21	12	18	25	30	0	
C 184	C3-14 DO YOU USE THE LEFT HAND THUMB RULE TO FIND THE NORTH POLE OF A CURRENT CARRYING COIL	16	17	11	15	19	30	0	
D 185	D1-01 DO YOU WORK WITH RC, LR, RCL CIRCUITS IN YOUR PRESENT JOB	35	37	31	35	37	49	29	
D 186	D1-02 DO YOU USE OR REFER TO VECTORS WHEN WORKING WITH RCL CIRCUITS	5	5	3	6	4	8	0	RCL CIRCUITS
D 187	D1-03 DO YOU USE OR REFER TO PYTHAGOREAN THEOREM WHEN WORKING WITH RCL CIRCUITS	4	4	3	3	4	11	0	
D 188	D1-04 DO YOU USE OR REFER TO SINE WHEN WORKING WITH RCL CIRCUITS	4	5	3	6	4	11	0	
D 189	D1-05 DO YOU USE OR REFER TO COSINE WHEN WORKING WITH RCL CIRCUITS	4	4	3	5	4	11	0	
D 190	D1-06 DO YOU USE OR REFER TO TANGENT WHEN WORKING WITH RCL CIRCUITS	4	4	3	4	4	11	0	
D 191	D1-07 DO YOU USE OR REFER TO WATTS WHEN WORKING WITH RCL CIRCUITS	15	16	12	12	15	27	14	
D 192	D1-08 DO YOU USE OR REFER TO TRUE POWER (PT) WHEN WORKING WITH RCL CIRCUITS	9	9	8	5	11	19	0	
D 193	D1-09 DO YOU USE OR REFER TO MAXIMUM POWER (PM) WHEN WORKING WITH RCL CIRCUITS	9	9	8	4	11	24	7	
D 194	D1-10 DO YOU USE OR REFER TO AVERAGE POWER (PAVE) WHEN WORKING WITH RCL CIRCUITS	9	9	11	6	10	22	7	
D 195	D1-11 DO YOU USE OR REFER TO APPARENT POWER (PA) WHEN WORKING WITH RCL CIRCUITS	6	7	4	5	7	19	0	
D 196	D1-12 DO YOU USE OR REFER TO POWER FACTOR (PF) WHEN WORKING WITH RCL CIRCUITS	7	7	8	3	9	19	0	
D 197	D1-13 DO YOU USE OR REFER TO RESONANT CIRCUITS WHEN WORKING WITH RCL CIRCUITS	20	22	12	21	19	32	14	
D 198	D1-14 DO YOU USE OR REFER TO BANDWIDTH WHEN WORKING WITH RCL CIRCUITS	13	13	11	9	12	19	14	
D 199	D1-15 DO YOU USE OR REFER TO SELECTIVITY WHEN WORKING WITH RCL CIRCUITS	11	11	11	6	11	19	14	
D 200	D1-16 DO YOU USE OR REFER TO RESONANT FREQUENCY WHEN WORKING WITH RCL CIRCUITS	18	20	12	17	18	30	14	
D 201	D1-17 DO YOU USE OR REFER TO HALF POWER POINTS WHEN WORKING WITH RCL CIRCUITS	6	5	7	6	4	11	7	
D 202	D1-18 DO YOU USE OR REFER TO BANDPASS REGION WHEN WORKING WITH RCL CIRCUITS	8	8	7	3	8	16	7	
D 203	D1-19 DO YOU USE OR REFER TO CIRCUIT Q WHEN WORKING WITH RCL CIRCUITS	5	5	4	3	4	14	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207
D 204	D1-20 DO YOU USE OR REFER TO TANK CIRCUITS WHEN WORKING WITH RCL CIRCUITS	23	25	16	25	23	35	21
D 205	D1-21 DO YOU DETERMINE VALUES OF TRIGONOMETRIC FUNCTIONS USING FORMULAS	3	3	3	0	4	5	0
D 206	D1-22 DO YOU DRAW VOLTAGE, CURRENT, OR IMPEDANCE VECTOR DIAGRAMS FOR CIRCUITS	2	2	1	0	4	5	0
D 207	D1-23 DO YOU CALCULATE TOTAL IMPEDANCE FOR CAPACITIVE CIRCUITS	7	7	5	3	10	14	0
D 208	D1-24 DO YOU CALCULATE PHASE ANGLES BETWEEN IMPEDANCE AND RESISTANCE IN CAPACITIVE CIRCUITS	3	4	3	1	4	14	0
D 209	D1-25 DO YOU CALCULATE TOTAL IMPEDANCE FOR SERIES RCL CIRCUITS	7	7	5	5	9	11	0
D 210	D1-26 DO YOU CALCULATE IMPEDANCE ANGLES FOR SERIES RCL CIRCUITS	3	4	3	2	4	8	0
D 211	D1-27 DO YOU CALCULATE APPARENT POWER (PA) FOR SERIES RCL CIRCUITS	4	4	4	1	6	11	0
D 212	D1-28 DO YOU CALCULATE TRUE POWER (PT) FOR SERIES RCL CIRCUITS	5	5	4	1	7	14	0
D 213	D1-29 DO YOU CALCULATE POWER FACTORS (PF) FOR SERIES RCL CIRCUITS	5	5	4	1	7	14	0
D 214	D1-30 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RCL CIRCUITS	6	6	5	2	8	16	0
D 215	D1-31 DO YOU CALCULATE IMPEDANCE ANGLES FOR PARALLEL RCL CIRCUITS	3	3	3	0	4	5	0
D 216	D1-32 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING THE ASSUMED VOLTAGE METHOD	5	5	5	2	5	14	0
D 217	D1-33 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING OHM'S LAW	8	8	5	7	10	14	0
D 218	D1-34 DO YOU CHECK CAPACITORS USING OHMMETERS	38	40	31	41	39	57	29
D 219	D1-35 DO YOU CHECK CAPACITORS USING SUBSTITUTION	25	26	22	23	25	49	14
D 220	D1-36 DO YOU CHECK INDUCTORS USING OHMMETERS	30	32	23	30	33	49	29
D 221	D1-37 DO YOU CHECK INDUCTORS USING SUBSTITUTION	20	21	16	18	21	38	14
D 222	D1-38 DO YOU USE OR REFER TO THE GENERAL RULE THAT THETA= 0, PF = 1, AND PA = PT FOR RESONANT CIRCUITS	3	3	3	1	3	14	0
D 223	D1-39 DO YOU CALCULATE RESONANT FREQUENCIES FOR RCL CIRCUITS	7	7	7	6	7	11	0
D 224	D1-40 DO YOU USE OR REFER TO THE GENERAL RULE THAT IMPEDANCE IS MINIMUM AND CURRENT MAXIMUM AT THE RESONANT FREQUENCY FOR SERIES RCL CIRCUITS	7	7	8	5	10	19	0
D 225	D1-41 DO YOU USE OR REFER TO THE GENERAL RULE THAT LINE CURRENT IS MINIMUM AND IMPEDANCE MAXIMUM AT RESONANT FREQUENCY FOR PARALLEL RCL CIRCUITS	6	6	7	5	9	11	0
D 226	D1-42 DO YOU USE OR REFER TO THE GENERAL RULE THAT HALF POWER POINTS ARE AT 70.7 PERCENT OF THE PEAK CURRENT VALUE	8	8	8	9	8	16	7
D 227	D1-43 DO YOU USE OR REFER TO THE GENERAL RULE THAT BANDWIDTH IS INVERSELY PROPORTIONAL TO Q	4	4	4	2	4	14	0
D 228	D1-44 DO YOU DETERMINE HOW CHANGES IN FREQUENCY, RESISTANCE, CAPACITANCE, OR INDUCTANCE WILL AFFECT CURRENT OR PHASE ANGLES FOR RCL CIRCUITS	6	7	4	4	8	16	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
D 229	D2-01 IN YOUR PRESENT JOB, DO YOU WORK WITH, USE, OR REFER TO SERIES OR PARALLEL RESONANT CIRCUITS OR TIME CONSTANTS	21	19	27	16	22	24	21	
D 230	D2-02 DO YOU WORK WITH, USE, OR REFER TO TIME CONSTANTS	21	20	23	17	22	24	21	
D 231	D2-03 DO YOU WORK WITH, USE, OR REFER TO AVAILABLE VOLTAGE	10	9	14	6	12	19	7	SERIES AND PARALLEL RESONANCE (TIME CONSTANTS)
D 232	D2-04 DO YOU WORK WITH, USE, OR REFER TO TRANSIENT INTERVALS	9	8	14	6	12	16	7	
D 233	D2-05 DO YOU USE OR REFER TO THE GENERAL RULE THAT A CAPACITOR IS FULLY CHARGED (OR DISCHARGED) AFTER FIVE (5) TIME CONSTANTS (TC)	12	11	16	8	15	19	14	
D 234	D2-06 DO YOU USE OR REFER TO UNIVERSAL TIME CONSTANT CHARTS	3	3	4	3	4	5	0	
D 235	D2-07 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CIRCUIT CURRENT OR COMPONENT VOLTAGES AFTER A SPECIFIC TIME FOR RC OR LR CIRCUITS	4	4	5	2	6	5	7	
D 236	D2-08 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE THE TIME REQUIRED FOR CIRCUIT CURRENT OR COMPONENT VOLTAGES TO REACH SPECIFIC VALUES FOR RC OR LR CIRCUITS	5	5	7	3	8	8	7	
D 237	D2-09 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE COMPONENT VALUES REQUIRED FOR CIRCUIT CURRENT AND COMPONENT VOLTAGES TO REACH SPECIFIC VALUES IN SPECIFIC TIMES	4	4	5	3	6	3	7	
D 238	D2-10 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT IN LR CIRCUITS REACHES ITS MINIMUM VALUE (OR ZERO) AFTER FIVE (5) TIME CONSTANTS	5	4	8	1	10	3	7	
D 239	D3-01 DO YOU WORK WITH CIRCUITS USED AS FILTERS IN YOUR PRESENT JOB	44	43	47	41	51	54	43	
D 240	D3-02 DO YOU INSPECT FILTER CIRCUITS	40	39	42	41	45	46	36	FILTERS
D 241	D3-03 DO YOU CLEAN FILTER CIRCUITS	35	34	39	36	39	41	29	
D 242	D3-04 DO YOU ALIGN OR ADJUST FILTER CIRCUITS	26	27	23	29	30	32	7	
D 243	D3-05 DO YOU TROUBLESHOOT TO THE FILTER CIRCUIT LEVEL	37	37	36	34	45	46	36	
D 244	D3-06 DO YOU TROUBLESHOOT TO COMPONENT PARTS	36	36	35	34	46	38	29	
D 245	D3-07 DO YOU REMOVE OR REPLACE THE COMPLETE FILTER CIRCUIT	36	37	41	35	43	54	36	
D 246	D3-08 DO YOU REMOVE OR REPLACE FILTER CIRCUIT COMPONENT PARTS	35	34	35	33	43	38	36	
D 247	D3-09 DO YOU WORK WITH LOW PASS FILTERS	26	26	24	24	32	22	21	
D 248	D3-10 DO YOU WORK WITH HIGH PASS FILTERS	23	23	23	20	29	24	14	
D 249	D3-11 DO YOU WORK WITH BANDPASS FILTERS	15	15	15	10	20	16	7	
D 250	D3-12 DO YOU WORK WITH BAND-REJECT FILTERS	11	11	11	9	14	16	7	
D 251	D3-13 DON'T REMEMBER WHICH TYPE OF FILTER YOU WORK WITH	18	17	22	17	18	35	29	
D 252	D3-14 DO YOU WORK WITH L-SECTION FILTER CONFIGURATION	15	13	20	11	18	22	21	
D 253	D3-15 DO YOU WORK WITH T-SECTION FILTER CONFIGURATION	15	14	19	13	16	22	21	
D 254	D3-16 DO YOU WORK WITH PI-SECTION FILTER CONFIGURATION	15	13	20	13	16	16	14	
D 255	D3-17 DON'T REMEMBER WHICH TYPE FILTER CONFIGURATION	21	22	18	22	24	32	21	
D 256	D3-18 DO THE FILTERS YOU WORK WITH USE PARALLEL RESONANT CIRCUITS	14	16	9	14	15	22	7	
D 257	D3-19 DO THE FILTERS YOU WORK WITH USE SERIES-PARALLEL CIRCUITS	18	18	15	16	22	22	14	
D 258	D3-20 DO THE FILTERS YOU WORK WITH USE SERIES RESONANT CIRCUITS	13	13	11	14	12	16	7	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	JOB-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
D 259	D3-21 DON'T REMEMBER WHICH TYPE OF BASIC CIRCUIT	24	24	24	22	25	41	21	
D 260	D3-22 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CAPACITANCE OR INDUCTANCE VALUES REQUIRED FOR SPECIFIC FILTERS	5	4	7	2	7	11	0	
E 261	E1-01 DO YOU WORK WITH COUPLING DEVICES IN YOUR PRESENT JOB	33	34	32	37	31	38	29	
E 262	E1-02 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH RC COUPLING	30	29	31	31	27	32	29	
E 263	E1-03 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH IMPEDANCE COUPLING	23	22	26	25	19	30	7	COUPLING
E 264	E1-04 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH TRANSFORMER COUPLING	29	30	27	33	25	32	29	
E 265	E1-05 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM RC COUPLING	29	29	30	30	27	27	29	
E 266	E1-06 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM IMPEDANCE COUPLING	22	21	27	24	18	24	7	
E 267	E1-07 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM TRANSFORMER COUPLING	27	26	28	29	24	27	29	
E 268	E1-08 DO YOU WORK WITH DIRECTLY COUPLED CIRCUITS	26	26	28	27	25	24	29	
E 269	E1-09 DO YOU WORK WITH CAPACITIVE-RESISTIVE COUPLED CIRCUITS	27	26	28	27	26	27	29	
E 270	E1-10 DO YOU WORK WITH CAPACITIVE-INDUCTIVE COUPLED CIRCUITS	21	22	20	22	19	24	14	
E 271	E1-11 DO YOU WORK WITH TRANSFORMER COUPLED CIRCUITS	26	26	27	28	23	27	29	
E 272	E1-12 DON'T REMEMBER WHICH TYPE OF COUPLING CIRCUITS	9	9	7	8	6	19	14	
E 273	E2-01 IN YOUR PRESENT JOB, DO YOU PERFORM SOLDERING TECHNIQUES OR INSPECT OR EVALUATE SOLDERED CONNECTIONS	81	80	81	87	78	84	100	
E 274	E2-02 DO YOU SELECT TYPE OF SOLDER TO USE	62	62	64	69	54	76	86	
E 275	E2-03 DO YOU ADD FLUX TO CONNECTIONS	74	74	74	80	70	86	93	SOLDERING
E 276	E2-04 DO YOU CLEAN CONNECTIONS USING SOLVENTS	77	76	77	82	73	84	100	
E 277	E2-05 DO YOU STRIP INSULATION FROM WIRES	81	82	80	90	77	84	100	
E 278	E2-06 DO YOU CONNECT OR DISCONNECT HEAT SINKS	77	78	76	83	76	84	100	
E 279	E2-07 DO YOU BEND OR SHAPE WIRES OR LEADS	81	82	80	90	77	86	100	
E 280	E2-08 DO YOU CUT WIRES	81	81	80	90	76	86	100	
E 281	E2-09 DO YOU FILE OR SHAPE SOLDERING IRON TIPS	63	63	62	66	61	76	79	
E 282	E2-10 DO YOU TIN SOLDERING IRON TIPS	80	80	80	88	75	84	100	
E 283	E2-11 DO YOU CLEAN SOLDERING IRON TIPS	81	81	80	90	76	84	100	
E 284	E2-12 DO YOU CLEAN ELECTRICAL SURFACES USING ERASERS	77	78	74	89	70	86	86	
E 285	E2-13 DO YOU TIN OR PRE-TIN CONDUCTORS	76	79	73	89	74	84	93	
E 286	E2-14 DO YOU INSPECT SOLDERED CONNECTIONS	82	82	81	90	79	86	100	
E 287	E2-15 DO YOU DESOLDER CONNECTIONS BY WICKING	69	69	66	74	67	76	79	
E 288	E2-16 DO YOU DESOLDER CONNECTIONS USING VACUUM DESOLDERING TOOLS	71	72	68	80	65	81	100	
E 289	E2-17 DO YOU CUT COMPONENT LEADS TO REMOVE COMPONENTS	68	69	62	77	63	81	86	
E 290	E2-18 DO YOU CRUSH COMPONENTS FOR REMOVAL	24	21	32	23	23	30	36	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
E 291	E2-19 DO YOU MAKE HARDWIRE CONNECTIONS	78	79	74	89	73	81	93	
E 292	E2-20 DO YOU MAKE PRINTED CIRCUIT BOARD CONNECTIONS	74	75	68	78	75	78	100	
E 293	E2-21 DO YOU SOLDER PASSIVE COMPONENTS SUCH AS RESISTORS OR CAPACITORS ON PRINTED CIRCUIT BOARDS	71	73	65	75	75	73	100	
E 294	E2-22 DO YOU SOLDER ACTIVE COMPONENTS SUCH AS SOLID-STATE DIODES OR TRANSISTORS ON PRINTED CIRCUIT BOARDS	71	73	64	75	75	68	100	
E 295	E3-01 DO YOU WORK WITH RELAYS ON YOUR PRESENT JOB	71	71	73	86	64	62	64	
E 296	E3-02 DO YOU ADJUST RELAYS	41	43	34	68	33	19	21	
E 297	E3-03 DO YOU CLEAN RELAYS	56	59	55	80	51	41	43	
E 298	E3-04 DO YOU INSPECT RELAYS	67	67	69	88	59	49	71	RELAYS
E 299	E3-05 DO YOU REMOVE OR REPLACE COMPLETE RELAYS	71	72	69	90	66	59	57	
E 300	E3-06 DO YOU REMOVE OR REPLACE PARTS OR RELAYS	33	36	22	60	26	16	14	
E 301	E3-07 DO YOU TROUBLESHOOT RELAYS	65	67	58	84	61	57	43	
E 302	E3-08 DO YOU STRAIGHTEN RELAY CONTACTS	53	54	47	74	46	30	50	
E 303	E3-09 DO YOU PERFORM TASKS ON RELAY CONTACTS	49	49	47	68	44	32	36	
E 304	E3-10 DO YOU PERFORM TASKS ON RELAY CORES	14	14	11	25	9	16	7	
E 305	E3-11 DO YOU PERFORM TASKS ON RELAY COILS	20	21	16	35	14	19	14	
E 306	E3-12 DO YOU PERFORM TASKS ON RELAY ARMATURES	26	28	19	42	21	19	14	
E 307	E3-13 DO YOU PERFORM TASKS ON RELAY SPRINGS	32	33	28	45	34	19	21	
E 308	E3-14 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY OPEN (NO) SCHEMATIC SYMBOLS FOR RELAYS	60	61	54	73	55	51	50	
E 309	E3-15 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY CLOSED (NC) SCHEMATIC SYMBOLS FOR RELAYS	59	61	54	73	54	54	50	
E 310	E3-16 DO YOU USE OR REFER TO SINGLE POLE, DOUBLE THROW (SPDT) SCHEMATIC SYMBOLS FOR RELAYS	58	59	54	70	53	54	43	
E 311	E3-17 DO YOU USE OR REFER TO DOUBLE POLE, DOUBLE THROW (DPDT) SCHEMATIC SYMBOLS FOR RELAYS	57	58	54	71	50	51	43	
E 312	E3-18 DO YOU USE OR REFER TO OTHER RELAY SYMBOLS SCHEMATIC SYMBOLS FOR RELAYS	50	50	51	67	43	43	43	
E 313	E3-19 DO YOU CHECK ELECTRICAL CONTINUITY OF COILS BY MEASURING RESISTANCE	56	56	57	72	47	51	50	
F 314	F1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH MICROPHONES	3	4	3	0	4	11	7	
F 315	F1-02 DO YOU INSPECT MICROPHONES	3	4	1	0	4	11	7	MICROPHONES
F 316	F1-03 DO YOU CLEAN MICROPHONES	3	4	0	0	3	11	7	
F 317	F1-04 DO YOU OPERATE MICROPHONES	3	3	3	1	3	11	7	
F 318	F1-05 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS BUT DO NOT TROUBLESHOOT DOWN TO COMPONENT PARTS OR MICROPHONES	3	3	3	0	3	8	7	
F 319	F1-06 DO YOU TROUBLESHOOT DOWN TO MICROPHONE PARTS	1	1	0	0	1	3	0	
F 320	F1-07 DO YOU REMOVE OR REPLACE COMPLETE MICROPHONES	3	3	3	1	4	8	0	
F 321	F1-08 DO YOU REMOVE OR REPLACE MICROPHONE PARTS	1	1	0	0	1	3	0	
F 322	F1-09 DO YOU PERFORM TASKS ON CARBON MICROPHONES	1	1	1	0	2	3	0	
F 323	F1-10 DO YOU PERFORM TASKS ON CAPACITOR MICROPHONES	0	0	0	0	0	0	0	
F 324	F1-11 DO YOU PERFORM TASKS ON CRYSTAL MICROPHONES	0	0	1	0	0	0	0	
F 325	F1-12 DO YOU PERFORM TASKS ON DYNAMIC MICROPHONES	2	2	1	0	2	8	0	
F 326	F1-13 DO YOU PERFORM TASKS ON VELOCITY RIBBON MICROPHONES	0	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
F 327	F2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH SPEAKERS	5	5	4	6	5	5	0	
F 328	F2-02 DO YOU INSPECT SPEAKERS	4	4	3	6	4	5	0	SPEAKERS
F 329	F2-03 DO YOU CLEAN SPEAKERS	3	4	1	6	3	3	0	
F 330	F2-04 DO YOU OPERATE SPEAKERS	3	3	3	3	3	5	0	
F 331	F2-05 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS BUT DO NOT TROUBLESHOOT DOWN TO COMPONENT PARTS OF SPEAKERS	4	4	4	5	5	3	0	
F 332	F2-06 DO YOU TROUBLESHOOT DOWN TO SPEAKER PARTS	1	2	0	1	2	3	0	
F 333	F2-07 DO YOU REMOVE OR REPLACE COMPLETE SPEAKERS	5	5	4	5	5	5	0	
F 334	F2-08 DO YOU REMOVE OR REPLACE SPEAKER PARTS	0	0	0	0	1	0	0	
F 335	F2-09 DO YOU PERFORM ANY TASKS ON SPEAKER CONES	0	0	0	0	0	0	0	
F 336	F2-10 DO YOU PERFORM ANY TASKS ON SPEAKER SPIDERS	0	0	0	0	0	0	0	
F 337	F2-11 DO YOU PERFORM ANY TASKS ON SPEAKER FIELD COILS	0	0	0	0	0	0	0	
F 338	F2-12 DO YOU PERFORM ANY TASKS ON SPEAKER VOICE COILS	0	0	0	0	0	0	0	
F 339	F2-13 DO YOU PERFORM ANY TASKS ON SPEAKER PERMANENT MAGNETS	0	0	0	0	1	0	0	
F 340	F2-14 DO YOU PERFORM ANY TASKS ON SPEAKER ELECTROMAGNETS	0	0	0	0	0	0	0	
F 341	F2-15 DO YOU PERFORM ANY TASKS ON SPEAKER SOFT IRON CORES	0	0	0	0	0	0	0	
F 342	F3-01 DO YOU USE OSCILLOSCOPES IN YOUR PRESENT JOB	87	88	81	93	81	86	100	
F 343	F3-02 DO YOU USE OSCILLOSCOPES TO PERFORM OPERATIONAL CHECKS	85	86	81	92	76	86	100	
F 344	F3-03 DO YOU USE OSCILLOSCOPES TO PERFORM ALIGNMENTS OR ADJUSTMENTS	83	84	81	91	77	81	100	OSCILLOSCOPES
F 345	F3-04 DO YOU USE OSCILLOSCOPES TO TROUBLESHOOT ELECTRONIC CIRCUITS	83	84	80	90	77	84	100	
F 346	F3-05 DO YOU USE OSCILLOSCOPES TO MEASURE FREQUENCY	80	82	74	83	75	89	93	
F 347	F3-06 DO YOU USE OSCILLOSCOPES TO MEASURE TIME	83	84	81	90	75	89	93	
F 348	F3-07 DO YOU USE OSCILLOSCOPES TO OBSERVE LISAJOUS PATTERNS	32	33	30	27	45	22	7	
F 349	F3-08 DO YOU USE OSCILLOSCOPES TO OBSERVE SIGNALS WHILE UTILIZING ATTENUATOR PROBES	78	78	78	87	69	78	86	
F 350	F3-09 DO YOU USE OSCILLOSCOPES TO MAKE FREQUENCY OR TIME MEASUREMENTS USING DELAY TIME MULTIPLIERS	64	64	66	63	65	65	57	
F 351	F3-10 DO YOU USE OSCILLOSCOPES TO MEASURE AC VOLTAGE	77	78	74	82	72	84	71	
F 352	F3-11 DO YOU USE OSCILLOSCOPES TO MEASURE OR OBSERVE SIGNALS AFTER FIRST ADJUSTING THE GAIN AND DC BAL CONTROLS	71	72	64	75	69	68	57	
F 353	F3-12 DO YOU USE OSCILLOSCOPES TO MEASURE DC VOLTAGE	86	87	81	92	79	89	100	
G 354	G1-01 DO YOU WORK WITH SEMICONDUCTOR DIODES IN YOUR PRESENT JOB	78	79	74	84	78	76	93	
G 355	G1-02 DO YOU INSPECT DIODES	74	75	70	78	78	73	93	
G 356	G1-03 DO YOU REMOVE OR REPLACE DIODES	74	76	66	82	77	73	93	SEMICONDUCTOR DIODES
G 357	G1-04 DO YOU CHECK DIODES USING AN INSTRUMENT	76	76	73	83	78	73	93	
G 358	G1-05 DO YOU USE ENERGY LEVEL DIAGRAMS IN YOUR WORK WITH DIODES	6	5	7	8	6	8	0	
G 359	G1-06 DO YOU USE PN JUNCTION DIODE CHARACTERISTIC CURVES, TOGETHER WITH VALUES OF FORWARD AND REVERSE BIAS VOLTAGE, TO COMPUTE FORWARD OR REVERSE BIAS RESISTANCE	9	9	7	10	10	14	7	
G 360	G1-07 DO YOU COMPUTE FORWARD OR REVERSE BIAS RESISTANCE FOR DIODES	16	16	15	16	20	14	14	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207
G 361	G1-08 DO YOU USE OR REFER TO THE GENERAL RULE THAT TEMPERATURE CAN AFFECT THE OPERATION OF DIODES	51	53	46	62	47	54	50
G 362	G1-09 DO YOU IDENTIFY SEMICONDUCTOR DIODES AS OPPOSED TO OTHER ELECTRONIC COMPONENTS, SUCH AS RESISTORS, BASED ON THEIR PHYSICAL APPEARANCE	71	72	68	80	72	65	86
G 363	G1-10 DO YOU REFER TO OR DO YOU DETERMINE THE GENERAL EFFECTS OF DOPING ON CURRENT FLOW	10	10	8	12	8	16	7
G 364	G1-11 DO YOU USE OR REFER TO MEASUREMENTS OF FORWARD BIAS RESISTANCE	59	61	51	62	65	62	64
G 365	G1-12 DO YOU USE OR REFER TO DIODE COLOR CODING	33	35	27	45	31	32	21
G 366	G1-13 DO YOU USE OR REFER TO CENTRIFUGAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	2	1	4	0	4	3	0
G 367	G1-14 DO YOU USE OR REFER TO CENTRIPETAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	2	1	4	0	4	3	0
G 368	G1-15 DO YOU USE OR REFER TO DIODE NUMBERING SYSTEM, SUCH AS IN 538	58	60	53	57	62	57	79
G 369	G1-16 DO YOU USE OR REFER TO KINETIC ENERGY OF AN ELECTRON MOVING IN ORBIT	2	2	4	0	5	3	0
G 370	G1-17 DO YOU USE OR REFER TO POTENTIAL ENERGY OF AN ELECTRON MOVING IN ORBIT	3	2	4	0	6	3	0
G 371	G1-18 DO YOU USE OR REFER TO MEASUREMENTS OF REVERSE BIAS RESISTANCE	59	60	53	58	67	62	57
G 372	G1-19 DO YOU USE OR REFER TO NUMBER OF ELECTRONS IN A PARTICULAR SHELL OR ORBIT	3	2	4	1	5	3	0
G 373	G1-20 DO YOU USE OR REFER TO PERMISSIBLE ENERGY LEVELS OF AN ORBITING ELECTRON	1	1	4	0	4	0	0
G 374	G1-21 DO YOU USE OR REFER TO FORBIDDEN ENERGY LEVELS OF AN ORBITING ELECTRON	1	1	4	0	4	0	0
G 375	G1-22 DO YOU USE OR REFER TO VALENCE ELECTRONS (THOSE IN THE OUTERMOST SHELL)	3	2	4	3	4	0	0
G 376	G1-23 DO YOU USE OR REFER TO ATOMIC NUMBER (TOTAL NUMBER OF ELECTRONS IN ATOM)	2	2	4	1	5	0	0
G 377	G1-24 DO YOU USE OR REFER TO SYMBOLS ON THE DIODE WHICH INDICATE THE CATHODE END	69	71	62	76	73	68	93
G 378	G1-25 DO YOU NEED TO KNOW WHICH MATERIALS ARE USED IN THE CONSTRUCTION OF DIODES SUCH AS GERMANIUM OR SILICON	22	22	22	24	22	19	7
G 379	G1-26 DO YOU NEED TO KNOW THAT SEMICONDUCTORS HAVE NEGATIVE TEMPERATURE COEFFICIENTS OF RESISTANCE (AS TEMPERATURE INCREASES RESISTANCE DECREASES)	26	26	26	30	25	30	21
G 380	G1-27 DO YOU USE OR REFER TO PN JUNCTION DIODE CHARACTERISTIC CURVES, SUCH AS VOLTAGE - CURRENT CHARACTERISTIC CURVES (PERHAPS YOU DO THIS TO IDENTIFY POINTS OF STRUCTURAL BREAKDOWN OR OPERATING REGIONS)	11	11	11	12	11	11	7
G 381	G1-28 DO YOU DETERMINE WHETHER PN JUNCTION DIODES ARE FORWARD BIASED OR REVERSE BIASED WHEN YOU READ OR INTERPRET CIRCUIT DIAGRAMS	48	49	46	50	46	62	50
G 382	G1-29 DO YOU USE OR REFER TO VALENCE BAND IN SEMICONDUCTOR MATERIALS	5	5	4	3	7	8	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
G 383	G1-30 DO YOU USE OR REFER TO FORBIDDEN BAND IN SEMICONDUCTOR MATERIALS	3	2	4	3	3	5	0	
G 384	G1-31 DO YOU USE OR REFER TO CONDUCTION BAND IN SEMICONDUCTOR MATERIALS	5	5	5	6	5	8	0	
G 385	G1-32 DO YOU USE OR REFER TO COVALENT BONDING IN SEMICONDUCTOR MATERIALS	4	4	4	4	4	8	0	
G 386	G1-33 DO YOU USE OR REFER TO ELECTRON-HOLE PAIR CREATED IN SEMICONDUCTORS	4	4	4	2	6	8	0	
G 387	G1-34 DO YOU USE OR REFER TO ELECTRON FLOW OR HOLE FLOW IN SEMICONDUCTORS	12	12	11	10	15	14	7	
G 388	G1-35 DO YOU USE OR REFER TO DONOR IMPURITY IN SEMICONDUCTORS	3	3	4	2	6	5	0	
G 389	G1-36 DO YOU USE OR REFER TO ACCEPTOR IMPURITY IN SEMICONDUCTORS	4	4	4	2	7	5	0	
G 390	G1-37 DO YOU USE OR REFER TO P-TYPE SEMICONDUCTOR MATERIAL	28	31	19	29	31	43	21	
G 391	G1-38 DO YOU USE OR REFER TO N-TYPE SEMICONDUCTOR MATERIAL	28	31	19	29	31	43	21	
G 392	G1-39 DO YOU USE OR REFER TO MAJORITY CARRIERS IN SEMICONDUCTORS	5	5	5	4	8	11	0	
G 393	G1-40 DO YOU USE OR REFER TO MINORITY CARRIERS IN SEMICONDUCTORS	5	5	5	4	8	11	0	
G 394	G1-41 DO YOU USE OR REFER TO JUNCTION RECOMBINATION IN SEMICONDUCTORS	3	3	5	2	5	5	0	
G 395	G1-42 DO YOU USE OR REFER TO DEPLETION REGION IN SEMICONDUCTORS	5	4	7	3	6	11	0	
G 396	G1-43 DO YOU USE OR REFER TO RELATIONSHIP BETWEEN BARRIER WIDTH AND DIFFERENCE OF POTENTIAL	5	5	7	5	7	8	0	
G 397	G1-44 DO YOU USE OR REFER TO THE 10:1 BACK TO FRONT RESISTANCE RATIO FOR DIODES	54	52	59	51	59	54	57	
G 398	G1-45 DO YOU USE OR REFER TO BARRIER HEIGHT IN SEMICONDUCTORS	3	3	4	2	5	5	0	
G 399	G1-46 DO YOU USE OR REFER TO DIODE SUBSTITUTION INFORMATION	49	50	43	53	48	49	64	
G 400	G1-47 DO YOU USE OR REFER TO MAXIMUM AVERAGE FORWARD CURRENT DIODE RATINGS	18	17	20	14	19	30	7	
G 401	G1-48 DO YOU USE OR REFER TO PEAK RECURRENT FORWARD CURRENT DIODE RATINGS	14	14	16	13	14	24	7	
G 402	G1-49 DO YOU USE OR REFER TO MAXIMUM SURGE CURRENT DIODE RATINGS	16	15	22	13	16	27	14	
G 403	G1-50 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE DIODE RATINGS	24	23	26	16	30	32	21	
G 404	G2-01 DO YOU WORK WITH TRANSISTORS IN YOUR PRESENT JOB.	76	76	76	74	76	84	100	
G 405	G2-02 DO YOU INSPECT TRANSISTORS	73	73	70	73	75	78	93	
G 406	G2-03 DO YOU REMOVE OR REPLACE TRANSISTORS	71	72	66	69	75	81	100	
G 407	G2-04 DO YOU CHECK TRANSISTORS USING AN INSTRUMENT	71	71	69	66	79	76	100	TRANSISTORS
G 408	G2-05 DO YOU USE OR REFER TO EMITTER - BASE (EB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	68	69	65	61	77	76	86	
G 409	G2-06 DO YOU USE OR REFER TO COLLECTOR - BASE (CB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	68	69	64	61	75	78	86	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
G 410	G2-07 DO YOU USE OR REFER TO EMITTER - COLLECTOR (EC) RESISTANCE MEASUREMENTS	68	70	62	61	76	78	86	
G 411	G2-08 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE EMITTER - BASE JUNCTION	19	20	14	12	24	32	21	
G 412	G2-09 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE COLLECTOR - BASE JUNCTION	18	19	14	11	23	27	21	
G 413	G2-10 DO YOU USE OR REFER TO THE PHYSICAL SIZE OF THE TRANSISTOR STRUCTURE (COLLECTOR, BASE AND EMITTER)	38	39	36	37	41	46	57	
G 414	G2-11 DO YOU USE OR REFER TO LEAKAGE CURRENT (ICBO) IN A TRANSISTOR	18	16	23	14	18	24	7	
G 415	G2-12 DO YOU USE OR REFER TO TRANSISTOR SCHEMATIC SYMBOLS	76	76	76	74	80	78	100	
G 416	G2-13 DO YOU USE OR REFER TO TRANSISTOR NOTATION SUCH AS Q1, Q2, Q3, ETC	75	76	74	72	79	89	100	
G 417	G2-14 DO YOU USE OR REFER TO TRANSISTOR SUBSTITUTION INFORMATION	55	56	54	52	60	57	86	
G 418	G2-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE TRANSISTOR BASE CURRENT IB IS NORMALLY SIGNIFICANTLY SMALLER THAN THE EMITTER CURRENT IE (USUALLY IB BEING 2 TO 8 PERCENT OF IE)	26	28	18	23	31	32	29	
G 419	G2-16 DO YOU USE THE INFORMATION THAT THE EFFECT OF EMITTER BASE VOLTAGE ON BASE CURRENT IS THE CONTROLLING FACTOR FOR TRANSISTORS	40	40	41	34	47	41	57	
G 420	G2-17 DO YOU USE THE GENERAL RULE THAT LEAKAGE CURRENT (ICBO) IN A TRANSISTOR INCREASES AS TEMPERATURE INCREASES	20	21	18	23	24	22	0	
G 421	G2-18 DO YOU USE OR REFER TO TRANSISTOR CHARACTERISTIC CURVES	13	13	12	11	15	8	14	
G 422	G2-19 DO YOU USE OR REFER TO BETA TRANSISTOR GAINS	11	11	12	10	14	5	14	
G 423	G2-20 DO YOU USE OR REFER TO ALPHA TRANSISTOR GAINS	8	7	9	7	11	5	14	
G 424	G2-21 DO YOU USE OR REFER TO GAMMA TRANSISTOR GAINS	7	6	9	5	11	5	14	
G 425	G2-22 DO YOU CALCULATE BETA TRANSISTOR GAINS	5	4	7	5	5	3	0	
G 426	G2-23 DO YOU CALCULATE ALPHA TRANSISTOR GAINS	3	3	5	3	5	3	0	
G 427	G2-24 DO YOU CALCULATE GAMMA TRANSISTOR GAINS	3	2	5	1	5	3	0	
G 428	G3-01 DO YOU WORK WITH TRANSISTOR AMPLIFIERS IN YOUR PRESENT JOB	42	38	59	35	45	51	71	TRANSISTOR AMPLIFIERS
G 429	G3-02 DO YOU INSPECT TRANSISTOR AMPLIFIERS	41	37	57	34	43	46	71	
G 430	G3-03 DO YOU ALIGN OR ADJUST TRANSISTOR AMPLIFIERS	35	31	53	30	34	43	50	
G 431	G3-04 DO YOU TROUBLESHOOT TO THE AMPLIFIER CIRCUIT LEVEL	41	37	55	35	42	49	64	
G 432	G3-05 DO YOU TROUBLESHOOT TO AMPLIFIER COMPONENTS	37	35	47	30	43	46	64	
G 433	G3-06 DO YOU REMOVE OR REPLACE THE COMPLETE AMPLIFIER	36	31	57	34	32	46	57	
G 434	G3-07 DO YOU REMOVE OR REPLACE AMPLIFIER COMPONENTS	36	33	47	28	39	46	71	
G 435	G3-08 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A CHANGE IN BASE CURRENT	21	21	19	17	28	24	29	
G 436	G3-09 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A SPECIFIC CHANGE IN BASE CURRENT	10	10	8	9	11	19	7	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207
G 437	G3-10 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR VOLTAGE WHICH RESULTS FROM A CHANGE IN BASE CURRENT	21	21	22	15	27	24	36
G 438	G3-11 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN COLLECTOR VOLTAGE WHICH RESULTS FROM A SPECIFIC CHANGE IN BASE CURRENT	11	12	8	10	14	19	14
G 439	G3-12 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN BASE CURRENT WHICH RESULTS FROM AN INPUT SIGNAL	19	20	16	15	25	24	29
G 440	G3-13 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN BASE CURRENT WHICH RESULTS FROM A SPECIFIC INPUT SIGNAL	9	10	7	10	11	14	7
G 441	G3-14 DO YOU USE THE LOAD-LINE METHOD OF ANALYSIS IN YOUR CIRCUIT ANALYSIS (THIS METHOD REQUIRES YOU TO PLOT A LOAD-LINE ON A TRANSISTOR CHARACTERISTIC CURVE)	3	2	5	1	5	3	0
G 442	G3-15 DO YOU USE OR REFER TO THE OPERATING POINT Q (QUIESCENT POINT) FOR A TRANSISTOR	10	9	15	7	12	14	7
G 443	G3-16 DO YOU CALCULATE THE SPECIFIC QUIESCENT POINT FOR A PARTICULAR TRANSISTOR	4	3	8	3	7	3	0
G 444	G3-17 DO YOU MEASURE VOLTAGE GAIN USED IN THE COMMON EMITTER CONFIGURATION	23	21	28	17	27	24	14
G 445	G3-18 DO YOU MEASURE CURRENT GAIN USED IN THE COMMON EMITTER CONFIGURATION	15	16	15	13	21	16	0
G 446	G3-19 DO YOU MEASURE POWER GAIN USED IN THE COMMON EMITTER CONFIGURATION	11	11	11	10	14	14	0
G 447	G3-20 DO YOU CALCULATE THE VOLTAGE GAIN FOR SPECIFIC TRANSISTORS USING A FORMULA THAT IS, DO YOU DIVIDE THE CHANGE IN BASE-EMITTER VOLTAGE INTO THE CHANGE THE BASE COLLECTOR VOLTAGE TO DETERMINE THE VOLTAGE GAIN	5	4	8	3	8	3	0
G 448	G3-21 DO YOU CALCULATE THE CURRENT GAIN FOR SPECIFIC TRANSISTORS USING A FORMULA THAT IS, DO YOU DIVIDE THE CHANGE IN BASE CURRENT INTO THE CHANGE IN COLLECTOR CURRENT TO DETERMINE THE CURRENT GAIN	5	4	7	3	8	3	0
G 449	G3-22 DO YOU CALCULATE THE POWER GAIN FOR A SPECIFIC TRANSISTOR USING A FORMULA THAT IS, DO YOU MULTIPLY THE CURRENT GAIN TIMES THE VOLTAGE GAIN TO DETERMINE THE POWER GAIN	3	3	5	3	5	3	0
G 450	G3-23 DO YOU NEED TO KNOW THAT MORE COLLECTOR CURRENT IS GENERATED WITH LESS COLLECTOR VOLTAGE AS TEMPERATURE INCREASES (THIS AFFECTS THE STATIC OPERATING POINT [Q] OF THE TRANSISTOR)	8	7	11	6	10	14	0
G 451	G3-24 DO YOU COMPUTE THE STATIC OPERATING POINT [Q] OF A TRANSISTOR AT DIFFERENT TEMPERATURES	3	3	7	4	4	3	0
G 452	G3-25 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH EMITTER (SWAMPING) RESISTOR STABILIZATION	19	18	24	16	24	24	21
G 453	G3-26 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH SELF-BIAS STABILIZATION	16	13	26	11	20	16	14

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207
G 454	G3-27 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH THERMISTOR STABILIZATION	14	13	19	11	16	22	7
G 455	G3-28 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH FORWARD BIAS DIODE STABILIZATION	19	17	24	15	23	22	14
G 456	G3-29 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH REVERSE BIAS DIODE STABILIZATION	18	17	23	14	23	24	14
G 457	G3-30 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH DOUBLE DIODE STABILIZATION	14	12	22	9	16	24	7
G 458	G3-31 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM EMITTER (SWAMPING) RESISTOR STABILIZATION	24	22	31	17	28	32	21
G 459	G3-32 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM SELF-BIAS STABILIZATION	21	18	30	13	26	27	14
G 460	G3-33 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM THERMISTOR STABILIZATION	18	16	26	12	19	30	7
G 461	G3-34 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM FORWARD BIAS DIODE STABILIZATION	23	22	28	18	29	30	14
G 462	G3-35 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM REVERSE BIAS DIODE STABILIZATION	23	21	27	18	29	27	14
G 463	G3-36 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM DOUBLE DIODE STABILIZATION	17	14	26	12	19	22	7
G 464	G3-37 DO YOU IDENTIFY AMPLITUDE DISTORTION FOR TRANSISTOR CIRCUITS	22	20	27	19	27	22	21
G 465	G3-38 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF AMPLITUDE DISTORTION	26	23	36	18	34	27	29
G 466	G3-39 DO YOU IDENTIFY FREQUENCY DISTORTION FOR TRANSISTOR CIRCUITS	20	21	19	15	30	19	7
G 467	G3-40 DO YOU IDENTIFY PHASE DISTORTION FOR TRANSISTOR CIRCUITS	17	17	19	13	27	16	7
G 468	G3-41 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF PHASE DISTORTION	17	17	16	14	25	16	14
G 469	G3-42 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF FREQUENCY DISTORTION	19	19	18	15	25	19	14
G 470	G3-43 DO YOU NEED TO KNOW THE DEGENERATIVE EFFECTS ON THE CIRCUIT CAUSED BY CHANGING EMITTER RESISTANCE FOR TRANSISTOR AMPLIFIERS IN THE COMMON COLLECTOR CONFIGURATION	8	8	11	6	14	8	0
G 471	G3-44 DO YOU DETERMINE THE CLASS OF OPERATION FOR AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	10	9	11	9	11	14	7
G 472	G3-45 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS	9	8	15	9	11	5	0
G 473	G3-46 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	26	23	35	24	32	19	14
G 474	G3-47 DO YOU TROUBLESHOOT OR REPAIR COMPLEMENTARY SYMMETRY CIRCUITS	15	13	24	12	18	19	7
G 475	G3-48 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS	13	11	19	10	17	11	7

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
G 476	G3-49 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS	17	14	30	15	18	16	14	
M 477	M1-01 DO YOU USE OR REFER TO VARACTORS	11	10	16	10	11	19	14	SOLID-STATE SPECIAL PURPOSE DEVICES
M 478	M1-02 DO YOU USE OR REFER TO TUNNEL DIODES	17	16	20	11	18	30	14	
M 479	M1-03 DO YOU USE OR REFER TO FIELD EFFECT TRANSISTORS (FET)	25	24	27	18	24	43	36	
M 480	M1-04 DO YOU USE OR REFER TO UNIJUNCTION TRANSISTORS	23	21	30	14	25	38	21	
M 481	M1-05 DO YOU USE OR REFER TO ZENER DIODES	73	74	68	71	74	78	100	
M 482	M1-06 DO YOU USE OR REFER TO INTEGRATED CIRCUITS	61	60	65	64	47	84	100	
M 483	M2-01 IN YOUR PRESENT JOB, DO YOU WORK WITH POWER SUPPLIES	77	77	80	87	70	78	100	POWER SUPPLIES
M 484	M2-02 DO YOU INSPECT POWER SUPPLIES	80	79	81	90	74	81	100	
M 485	M2-03 DO YOU CLEAN POWER SUPPLIES	77	77	78	88	72	76	100	
M 486	M2-04 DO YOU ALIGN OR ADJUST POWER SUPPLIES	77	76	80	87	70	76	100	
M 487	M2-05 DO YOU TROUBLESHOOT TO POWER SUPPLY CIRCUIT LEVEL	69	68	70	72	68	68	86	
M 488	M2-06 DO YOU TROUBLESHOOT TO POWER SUPPLY COMPONENTS	64	64	62	61	67	70	93	
M 489	M2-07 DO YOU REMOVE OR REPLACE COMPLETE POWER SUPPLIES	75	73	81	83	68	76	100	
M 490	M2-08 DO YOU REMOVE OR REPLACE POWER SUPPLY COMPONENTS	62	63	59	62	65	65	93	
M 491	M2-09 DO YOU WORK WITH HALF-WAVE RECTIFIERS	53	53	54	50	53	65	57	
M 492	M2-10 DO YOU WORK WITH FULL-WAVE RECTIFIERS OTHER THAN BRIDGE RECTIFIERS	58	58	57	53	61	70	71	
M 493	M2-11 DO YOU WORK WITH BRIDGE RECTIFIERS	59	58	59	58	57	70	79	
M 494	M2-12 DO YOU WORK WITH THREE-PHASE RECTIFIERS	36	36	35	46	21	65	36	
M 495	M2-13 DO YOU USE OR REFER TO INPUT VOLTAGE	69	69	66	76	66	68	86	
M 496	M2-14 DO YOU USE OR REFER TO INPUT FREQUENCY	53	54	50	51	52	68	57	
M 497	M2-15 DO YOU USE OR REFER TO PEAK OUTPUT VOLTAGE	59	60	58	64	57	62	64	
M 498	M2-16 DO YOU USE OR REFER TO AVERAGE OUTPUT VOLTAGE	55	55	57	64	52	57	64	
M 499	M2-17 DO YOU USE OR REFER TO RIPPLE AMPLITUDE	62	61	64	68	60	57	79	
M 500	M2-18 DO YOU USE OR REFER TO RIPPLE FREQUENCY	49	49	50	52	46	57	57	
M 501	M2-19 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE	36	36	38	36	35	46	43	
M 502	M2-20 DO YOU USE OR REFER TO SHAPE OF OUTPUT WAVEFORMS	61	61	58	64	60	65	71	
M 503	M2-21 DO YOU USE OR REFER TO EFFECTIVE OUTPUT VOLTAGE	59	58	62	63	55	57	71	
M 504	M2-22 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE FILTERS	49	47	58	50	53	49	57	
M 505	M2-23 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE FILTERS	36	36	38	40	34	41	43	
M 506	M2-24 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE INPUT L-TYPE FILTERS	32	31	36	31	31	41	50	
M 507	M2-25 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE INPUT L-TYPE FILTERS	29	29	30	30	27	38	36	
M 508	M2-26 DO YOU WORK WITH CIRCUITS WHICH EMPLOY LC PI-TYPE FILTERS	25	24	31	27	22	32	43	
M 509	M2-27 DO YOU WORK WITH CIRCUITS WHICH EMPLOY RC PI-TYPE FILTERS	28	26	38	25	26	38	43	
M 510	M2-28 DO YOU WORK WITH CIRCUITS WHICH EMPLOY DON'T REMEMBER WHICH TYPE OF FILTER	35	36	30	44	29	41	50	
M 511	M2-29 DO YOU HAVE THE OPTION OF REPLACING ONE TYPE OF FILTER WITH A DIFFERENT TYPE FILTER	5	6	4	6	5	8	0	
M 512	M3-01 DO YOU WORK WITH OSCILLATORS IN YOUR PRESENT JOB	54	53	58	55	49	62	64	OSCILLATORS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207
M 513	M3-02 DO YOU INSPECT OSCILLATORS	47	46	51	50	46	51	43
M 514	M3-03 DO YOU ALIGN OR ADJUST OSCILLATORS	44	42	54	43	44	54	50
M 515	M3-04 DO YOU REMOVE OR REPLACE COMPLETE OSCILLATORS	47	46	54	50	46	51	57
M 516	M3-05 DO YOU REMOVE OR REPLACE OSCILLATOR COMPONENTS	34	32	43	31	32	49	29
M 517	M3-06 DO YOU TROUBLESHOOT TO OSCILLATOR CIRCUIT LEVEL	47	46	50	50	43	57	50
M 518	M3-07 DO YOU TROUBLESHOOT TO OSCILLATOR COMPONENTS	35	34	41	34	34	46	29
M 519	M3-08 DO YOU USE OR REFER TO FEEDBACK	33	33	32	33	34	32	29
M 520	M3-09 DO YOU USE OR REFER TO FREQUENCY DETERMINING DEVICES (FDD)	30	30	27	35	32	32	21
M 521	M3-10 DO YOU USE OR REFER TO AMPLITUDE STABILITY	27	25	32	27	28	24	29
M 522	M3-11 DO YOU USE OR REFER TO FREQUENCY STABILITY	33	32	36	37	34	24	29
M 523	M3-12 DO YOU USE OR REFER TO DAMPING	18	16	26	17	19	14	21
M 524	M3-13 DO YOU USE OR REFER TO REGENERATIVE FEEDBACK	25	24	28	22	27	24	7
M 525	M3-14 DO YOU USE OR REFER TO PIEZOELECTRIC EFFECT	11	9	19	9	11	14	7
M 526	M3-15 DO YOU USE OR REFER TO CRITICAL DAMPING	10	9	14	9	11	11	7
M 527	M3-16 DO YOU USE OR REFER TO UNDER DAMPING	9	8	15	9	9	11	7
M 528	M3-17 DO YOU USE OR REFER TO OVER DAMPING	9	8	15	9	10	11	7
M 529	M3-18 DO YOU WORK WITH OSCILLATORS WHICH USE LC TANK CIRCUITS AS FDD	22	21	26	26	24	16	29
M 530	M3-19 DO YOU WORK WITH OSCILLATORS WHICH USE RC NETWORKS AS FDD	29	28	34	26	28	32	29
M 531	M3-20 DO YOU WORK WITH OSCILLATORS WHICH USE CRYSTALS AS FDD	40	41	38	42	41	43	43
M 532	M3-21 DO YOU WORK WITH OSCILLATORS WHICH USE DON'T REMEMBER WHICH TYPE OF FDD	18	16	26	19	14	27	21
M 533	M3-22 DO YOU WORK WITH SERIES HARTLEY SINUSOIDAL OSCILLATORS	18	17	20	14	19	27	14
M 534	M3-23 DO YOU WORK WITH SHUNT HARTLEY SINUSOIDAL OSCILLATORS	17	16	20	13	18	27	14
M 535	M3-24 DO YOU WORK WITH COLPITTS SINUSOIDAL OSCILLATORS	18	17	22	13	19	27	7
M 536	M3-25 DO YOU WORK WITH CLAPP SINUSOIDAL OSCILLATORS	11	11	14	10	11	24	0
M 537	M3-26 DO YOU WORK WITH BUTLER SINUSOIDAL OSCILLATORS	14	13	18	12	13	24	0
M 538	M3-27 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF OSCILLATORS	29	28	32	32	24	41	43
I 539	I1-01 DO YOU WORK WITH MULTIVIBRATORS IN YOUR PRESENT JOB	65	65	66	68	65	59	71
I 540	I1-02 DO YOU INSPECT WAVE GENERATING OR SHAPING CIRCUITS	58	58	57	62	59	54	43
I 541	I1-03 DO YOU ALIGN OR ADJUST WAVE GENERATING OR SHAPING CIRCUITS	52	51	58	53	54	51	57
I 542	I1-04 DO YOU CALIBRATE WAVE GENERATING OR SHAPING CIRCUITS	39	37	47	39	42	38	29
I 543	I1-05 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUITS	55	55	55	59	60	46	43
I 544	I1-06 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUIT COMPONENTS	47	47	49	44	58	43	36
I 545	I1-07 DO YOU REMOVE OR REPLACE COMPLETE WAVE GENERATING OR SHAPING CIRCUITS	53	51	57	62	51	46	43
I 546	I1-08 DO YOU REMOVE OR REPLACE WAVE GENERATING OR SHAPING COMPONENTS	45	45	47	38	57	43	43
I 547	I1-09 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN LC TANK CIRCUITS	29	29	27	34	33	22	21

MULTIVIBRATORS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
I 548	11-10 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN RC NETWORKS	39	41	35	38	47	32	36	
I 549	11-11 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN CRYSTALS	32	31	34	34	34	27	43	
I 550	11-12 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN DON'T REMEMBER WHICH TYPE OF FDD	21	21	23	22	20	27	50	
I 551	11-13 DO YOU WORK WITH ASTABLE MULTIVIBRATORS	48	47	54	49	46	49	43	
I 552	11-14 DO YOU WORK WITH MONOSTABLE MULTIVIBRATORS	58	58	55	59	60	59	50	
I 553	11-15 DO YOU WORK WITH BISTABLE MULTIVIBRATORS	63	64	59	67	62	65	57	
I 554	11-16 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE MULTIVIBRATORS	9	6	14	10	4	11	21	
I 555	12-01 DO YOU WORK WITH LIMITERS OR CLAMPERS IN YOUR PRESENT JOB	43	42	43	39	47	57	36	
I 556	12-02 DO YOU WORK WITH SERIES DIODE LIMITERS	31	32	31	31	34	41	7	
I 557	12-03 DO YOU WORK WITH SHUNT DIODE LIMITERS	30	29	32	32	31	38	14	LIMITERS AND CLAMPERS
I 558	12-04 DO YOU WORK WITH LIMITERS WITH BIAS	26	24	32	27	25	32	14	
I 559	12-05 DO YOU WORK WITH ZENER DIODE LIMITERS	33	32	36	32	37	38	21	
I 560	12-06 DO YOU WORK WITH TRANSISTOR LIMITERS	28	27	31	28	31	32	14	
I 561	12-07 DO YOU WORK WITH DON'T KNOW WHICH TYPE OF LIMITERS	13	12	15	10	11	30	29	
I 562	12-08 DO YOU WORK WITH BASIC DIODE CLAMPING CIRCUITS	29	29	32	30	33	27	21	
I 563	12-09 DO YOU WORK WITH DIODE CLAMPING CIRCUITS WITH BIAS	25	23	32	24	26	24	14	
I 564	12-10 DO YOU WORK WITH DON'T KNOW WHICH TYPE OF CLAMPING CIRCUIT	14	13	19	8	14	32	29	
I 565	13-01 IN YOUR PRESENT JOB, DO YOU WORK ON EQUIPMENT WHICH CONTAINS ELECTRON TUBES	33	35	23	67	12	27	0	
I 566	13-02 DO YOU CHECK ELECTRON TUBES TO SEE IF THEY ARE GOOD	26	31	9	61	11	19	0	
I 567	13-03 DO YOU USE TUBE TESTERS TO CHECK ELECTRON TUBES	19	24	3	50	6	3	0	ELECTRON TUBES
I 568	13-04 DO YOU USE MULTIMETERS TO CHECK ELECTRON TUBES	14	16	9	29	9	8	0	
I 569	13-05 DO YOU USE SCOPES TO CHECK ELECTRON TUBES	19	21	12	42	8	11	0	
I 570	13-06 DO YOU USE SUBSTITUTION TO CHECK ELECTRON TUBES	26	30	11	62	7	16	0	
I 571	13-07 DO YOU USE OR REFER TO CUTOFF	7	8	4	15	4	3	0	
I 572	13-08 DO YOU USE OR REFER TO PEAK INVERSE VOLTAGE RATING	4	4	3	8	1	5	0	
I 573	13-09 DO YOU USE OR REFER TO PEAK CURRENT RATING	3	4	3	8	0	5	0	
I 574	13-10 DO YOU USE OR REFER TO TRANSIT TIME	3	4	1	9	0	5	0	
I 575	13-11 DO YOU USE OR REFER TO PLATE DISSIPATION RATING	2	3	1	5	0	5	0	
I 576	13-12 DO YOU USE OR REFER TO SATURATION	6	7	3	12	2	5	0	
I 577	13-13 DO YOU USE OR REFER TO DC PLATE RESISTANCE	4	4	3	9	1	5	0	
I 578	13-14 DO YOU COMPUTE ACTUAL VALUES OF THE DC PLATE RESISTANCE FOR ELECTRON TUBES	1	1	0	2	0	3	0	
I 579	13-15 DO YOU USE OR REFER TO PLATE VOLTAGE	16	18	7	35	7	5	0	
I 580	13-16 DO YOU USE OR REFER TO PLATE CURRENT	11	13	4	25	4	5	0	
I 581	13-17 DO YOU USE OR REFER TO GRID VOLTAGE	15	18	7	35	7	5	0	
I 582	13-18 DO YOU USE OR REFER TO GRID CURRENT	11	13	4	25	4	5	0	
I 583	13-19 DO YOU USE OR REFER TO CATHODE VOLTAGE	15	17	7	33	7	5	0	
I 584	13-20 DO YOU USE OR REFER TO CATHODE CURRENT	11	13	4	25	4	5	0	
I 585	13-21 DO YOU USE OR REFER TO THE TRIODE AMPLIFICATION FACTOR (THE AMPLIFICATION FACTOR FOR TRIODES IS DEFINED AS THE RATIO OF CHANGE IN PLATE VOLTAGE TO A CHANGE IN GRID VOLTAGE)	3	3	1	7	1	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
I 586	I3-22 DO YOU CALCULATE ACTUAL VALUES OF TRIODE AMPLIFICATION FACTORS	1	1	0	1	1	0	0	
I 587	I3-23 DO YOU USE OR REFER TO MULTIGRID (TETRODE, PENTODE, ETC) AMPLIFICATION FACTORS	2	3	0	5	1	3	0	
I 588	I3-24 DO YOU USE OR REFER TO ELECTRON TUBE TRANSCONDUCTANCE (G, WHICH IS MEASURED IN MHOS)	1	1	1	2	2	0	0	
I 589	I3-25 DO YOU CALCULATE ACTUAL VALUES OF ELECTRON TUBE TRANSCONDUCTANCES	1	1	0	1	1	0	0	
I 590	I3-26 DO YOU USE OR REFER TO THE ELECTRON TUBE PARAMETER CALLED AC PLATE RESISTANCE	1	1	1	3	1	0	0	
I 591	I3-27 DO YOU CALCULATE ACTUAL VALUES OF AC PLATE RESISTANCE	1	1	0	2	1	0	0	
I 592	I3-28 DO YOU USE OR REFER TO ELECTRON TUBE INTERELECTRODE CAPACITANCE	2	2	1	3	1	3	0	
I 593	I3-29 DO YOU USE OR REFER TO CHARACTERISTIC CURVES IN YOUR WORK WITH ELECTRON TUBES	1	1	0	2	1	3	0	
I 594	I3-30 DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE VOLTAGE FOR A SPECIFIED BIAS	2	2	1	4	1	3	0	
I 595	I3-31 DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE CURRENT FOR A SPECIFIED BIAS	2	2	1	3	1	3	0	
I 596	I3-32 DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR CUTOFF	3	3	0	7	1	3	0	
I 597	I3-33 DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR SATURATION	2	3	0	6	1	3	0	
I 598	I3-34 DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER GAIN	11	11	8	20	6	5	0	
I 599	I3-35 DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER EFFICIENCY	7	7	4	10	6	5	0	
I 600	I3-36 DO YOU USE TEST TUBE CHECKERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	13	16	1	31	6	3	0	
I 601	I3-37 DO YOU USE MULTIMETERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	9	9	7	18	5	5	0	
I 602	I3-38 DO YOU USE OSCILLOSCOPES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	11	12	8	24	3	5	0	
I 603	I3-39 DO YOU USE CHARACTERISTIC CURVES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	2	3	1	4	1	5	0	
I 604	I3-40 DO YOU CALCULATE ANY ELECTRON TUBE CAPACITANCES SUCH AS INPUT CAPACITANCE	0	0	0	0	0	0	0	
I 605	I3-41 DO YOU USE OR REFER TO TUBE SOCKET NOTATION	22	25	8	54	6	11	0	
I 606	I3-42 DO YOU USE OR REFER TO PIN NUMBERING SYSTEMS	23	26	11	53	8	14	0	
I 607	I3-43 DO YOU USE OR REFER TO THE TYPE OF MATERIAL OR THE OPERATING TEMPERATURE OF THE EMITTING SURFACE IN THE ELECTRON TUBES YOU WORK ON	1	2	0	3	1	3	0	
I 608	I3-44 DO YOU USE OR REFER TO TUBE SUBSTITUTION MATERIAL SUCH AS MANUALS OR CHARTS	13	14	5	31	4	3	0	
J 609	J1-01 DO YOU WORK WITH ELECTRON TUBE AMPLIFIERS OR CIRCUITS IN YOUR PRESENT JOB	16	17	11	37	4	0	0	ELECTRON TUBE AMPLIFIERS AND CIRCUITS
J 610	J1-02 DO YOU DETERMINE THE CLASS OF OPERATION FOR ELECTRON TUBE AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	4	5	0	9	3	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
J 611	J1-03 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS	2	2	1	5	0	0	0	
J 612	J1-04 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	7	8	3	14	4	0	0	
J 613	J1-05 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS	3	4	1	6	2	0	0	
J 614	J1-06 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS	4	5	1	8	4	0	0	
J 615	J1-07 DO YOU TROUBLESHOOT OR REPAIR DONT KNOW WHICH TYPE OF AMPLIFIER	6	7	5	16	2	0	0	
J 616	J2-01 DO YOU WORK WITH GAS TUBES (HOT CATHODE OR COLD CATHODE)	15	16	9	35	4	0	14	
J 617	J2-02 DO YOU WORK WITH CATHODE-RAY TUBES	31	31	34	51	16	32	14	
J 618	J2-03 DO YOU USE OR REFER TO THE CHARACTERISTICS OF BEAM POWER TUBES	4	5	0	10	4	0	0	SPECIAL PURPOSE ELECTRON TUBES
J 619	J2-04 DO YOU TROUBLESHOOT OR REPAIR CIRCUITS IN WHICH BEAM POWER TUBES ARE USED	6	7	1	13	4	0	0	
J 620	J2-05 DO YOU USE OR REFER TO THE CHARACTERISTICS OF THYRATRONS	7	9	0	22	1	0	0	
J 621	J2-06 DO YOU TROUBLESHOOT OR REPAIR CIRCUITS IN WHICH THYRATRONS ARE USED	10	12	1	30	1	0	0	
J 622	J2-07 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTRON GUNS OF CATHODE-RAY TUBES (CRT)	24	25	22	42	13	24	14	
J 623	J2-08 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROMAGNETIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)	23	22	24	38	13	22	14	
J 624	J2-09 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROSTATIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)	23	23	22	39	13	16	14	
J 625	J2-10 DO YOU USE OR REFER TO PHOSPHOR SCREENS	25	25	23	42	15	24	21	
J 626	J2-11 DO YOU USE OR REFER TO AQUADAG COATINGS	20	18	26	36	9	14	14	
J 627	J2-12 DO YOU USE OR REFER TO ELECTRON OPTICS	9	9	9	17	6	3	7	
J 628	J2-13 DO YOU USE OR REFER TO PERSISTENCE	15	14	18	30	5	11	14	
J 629	J2-14 DO YOU USE OR REFER TO DECAY TIMES	11	12	9	23	4	11	14	
J 630	J2-15 DO YOU USE OR REFER TO FLUORESCENCE	11	12	8	21	6	14	7	
J 631	J2-16 DO YOU USE OR REFER TO PHOSPHORESCENCE	18	18	16	33	8	19	7	
J 632	J3-01 DO YOU WORK ON TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	18	20	11	7	32	22	0	
J 633	J3-02 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	11	13	5	3	19	19	0	
J 634	J3-03 DO YOU PERFORM TASKS ON FREQUENCY MIXERS	10	12	4	2	19	16	0	HETERODYNING, MODULATION, AND
J 635	J3-04 DO YOU USE OR REFER TO THE HETERODYNING OF SIGNALS IN YOUR WORK WITH TRANSMIT OR RECEIVE SYSTEMS	10	13	1	0	25	8	0	DEMODULATION
J 636	J3-05 DO YOU PERFORM TASKS ON REACTANCE MODULATORS	3	3	0	1	4	8	0	
J 637	J3-06 DO YOU PERFORM TASKS ON MODULATED OSCILLATORS	9	11	1	3	18	14	0	
K 638	K1-01 DO YOU WORK ON AM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	1	1	1	2	1	0	0	
K 639	K1-02 DO YOU INSPECT AM TRANSMIT OR RECEIVE SYSTEMS	1	1	1	1	1	0	0	AM SYSTEMS
K 640	K1-03 DO YOU CLEAN AM TRANSMIT OR RECEIVE SYSTEMS	1	1	0	1	1	0	0	
K 641	K1-04 DO YOU ALIGN OR ADJUST AM TRANSMIT OR RECEIVE SYSTEMS	1	1	1	1	1	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
x 642	K1-05 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE SYSTEMS	1	1	0	2	1	0	0	
x 643	K1-06 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE COMPONENTS	1	1	0	0	1	0	0	
x 644	K1-07 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE SYSTEMS	1	1	0	1	1	0	0	
x 645	K1-08 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE COMPONENTS	1	1	0	0	1	0	0	
x 646	K1-09 DO YOU PERFORM TASKS ON RF OSCILLATORS	1	1	0	1	1	0	0	
x 647	K1-10 DO YOU PERFORM TASKS ON RF AMPLIFIERS	1	1	0	1	1	0	0	
x 648	K1-11 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS	1	1	0	1	1	0	0	
x 649	K1-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	1	1	0	1	1	0	0	
x 650	K1-13 DO YOU PERFORM TASKS ON LOCAL OSCILLATORS	1	1	0	1	1	0	0	
x 651	K1-14 DO YOU PERFORM TASKS ON IF AMPLIFIERS	1	1	0	1	1	0	0	
x 652	K1-15 DO YOU PERFORM TASKS ON DETECTORS	1	1	0	1	1	0	0	
x 653	K1-16 DO YOU PERFORM TASKS ON DON'T REMEMBER WHICH AM STAGE	1	1	1	1	1	0	0	
x 654	K1-17 DO YOU USE OR REFER TO AMPLITUDE STABILIZATION IN TRANSMITTERS	1	1	1	1	1	0	0	
x 655	K1-18 DO YOU USE OR REFER TO FREQUENCY STABILIZATION IN TRANSMITTERS	1	1	1	0	1	0	0	
x 656	K1-19 DO YOU USE OR REFER TO SENSITIVITY OF RECEIVERS	1	1	0	2	0	0	0	
x 657	K1-20 DO YOU USE OR REFER TO SELECTIVITY OF RECEIVERS	1	1	0	2	0	0	0	
x 658	K1-21 DO YOU USE OR REFER TO 2ND HARMONIC DISTORTION	0	0	0	0	0	3	0	
x 659	K1-22 DO YOU USE OR REFER TO BANDPASS DISTORTION	0	0	0	0	0	0	0	
x 660	K1-23 DO YOU USE OR REFER TO SQUARE LAW DISTORTION	0	0	0	0	0	0	0	
x 661	K1-24 DO YOU USE OR REFER TO CO-CHANNEL INTERFERENCE	0	0	0	1	0	0	0	
x 662	K1-25 DO YOU USE OR REFER TO IMAGE FREQUENCIES IN RECEIVERS	0	0	0	0	0	0	0	
x 663	K1-26 DO YOU USE OR REFER TO SIGNAL TO IMAGE RATIOS OR IMAGE REJECTION RATIOS	0	0	0	0	0	0	0	
x 664	K1-27 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM TRANSMITTER SCHEMATIC DIAGRAMS	1	1	1	1	0	0	0	
x 665	K1-28 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM RECEIVER SCHEMATIC DIAGRAMS	1	1	1	1	0	0	0	
x 666	K2-01 DO YOU WORK WITH FM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	2	2	4	3	0	5	0	
x 667	K2-02 DO YOU INSPECT FM TRANSMIT OR RECEIVE SYSTEMS	2	2	4	3	0	5	0	
x 668	K2-03 DO YOU CLEAN FM TRANSMIT OR RECEIVE SYSTEMS	2	2	4	3	0	5	0	
x 669	K2-04 DO YOU ALIGN FM TRANSMIT OR RECEIVE SYSTEMS	3	2	4	3	0	8	0	FM SYSTEMS
x 670	K2-05 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE SYSTEMS	2	2	3	4	0	5	0	
x 671	K2-06 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE COMPONENTS	2	2	1	3	0	5	0	
x 672	K2-07 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE SYSTEMS	3	2	4	3	1	5	0	
x 673	K2-08 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE COMPONENTS	2	2	1	3	1	5	0	
x 674	K2-09 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS	1	1	0	2	1	3	0	
x 675	K2-10 DO YOU PERFORM TASKS ON FREQUENCY MULTIPLIERS	1	1	1	1	1	5	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
K 676	K2-11 DO YOU PERFORM TASKS ON DRIVERS (INTERMEDIATE AMPLIFIERS)	2	2	1	2	1	5	0	
K 677	K2-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	1	2	0	2	1	5	0	
K 678	K2-13 DO YOU PERFORM TASKS ON RF AMPLIFIERS	1	1	0	2	1	3	0	
K 679	K2-14 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	1	1	1	1	1	5	0	
K 680	K2-15 DO YOU PERFORM TASKS ON IF AMPLIFIERS	1	1	0	2	1	3	0	
K 681	K2-16 DO YOU PERFORM TASKS ON LIMITERS	2	2	1	2	1	5	0	
K 682	K2-17 DO YOU PERFORM TASKS ON FREQUENCY DISCRIMINATORS	2	2	1	3	1	5	0	
K 683	K2-18 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM TRANSMITTERS	2	1	4	1	1	3	0	
K 684	K2-19 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM RECEIVERS	2	1	4	2	1	3	0	
K 685	K3-01 DO YOU CONVERT DECIMAL (BASE 10) NUMBERS TO OCTAL (BASE 8) NUMBERS	63	66	51	76	52	70	79	
K 686	K3-02 DO YOU CONVERT DECIMAL NUMBERS TO BINARY (BASE 2) NUMBERS	69	72	59	81	59	78	93	
K 687	K3-03 DO YOU CONVERT OCTAL NUMBERS TO DECIMAL NUMBERS	64	67	54	77	52	78	79	NUMBERING SYSTEMS
K 688	K3-04 DO YOU CONVERT OCTAL NUMBERS TO BINARY NUMBERS	67	69	59	81	52	78	86	
K 689	K3-05 DO YOU CONVERT BINARY NUMBERS TO DECIMAL NUMBERS	71	74	61	84	60	78	93	
K 690	K3-06 DO YOU CONVERT BINARY NUMBERS TO OCTAL NUMBERS	66	68	57	81	50	78	93	
K 691	K3-07 DO YOU ADD BINARY NUMBERS TO GET A SUM	57	59	50	74	43	62	86	
K 692	K3-08 DO YOU SUBTRACT BINARY NUMBERS USING THE END-AROUND-CARRY METHOD	48	51	38	63	35	59	57	
K 693	K3-09 DO YOU SUBTRACT BINARY NUMBERS USING THE DIRECT SUBTRACTION METHOD	51	53	43	68	38	59	71	
K 694	K3-10 DO YOU ADD OCTAL NUMBERS TO GET A SUM	53	57	39	72	39	65	64	
L 695	L1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO LOGIC FUNCTIONS	74	76	66	75	71	78	100	
L 696	L1-02 DO YOU CONSTRUCT TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	47	49	42	47	47	51	71	
L 697	L1-03 DO YOU CONSTRUCT TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	47	49	42	47	46	51	71	LOGIC FUNCTIONS
L 698	L1-04 DO YOU CONSTRUCT TRUTH TABLES FOR AND OR OR LOGIC SYMBOLS WITH STATE INDICATORS	47	48	42	46	46	51	71	
L 699	L1-05 DO YOU CONSTRUCT TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS OR GATES	45	46	42	43	46	51	71	
L 700	L1-06 DO YOU USE OR REFER TO TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	57	58	50	54	58	68	64	
L 701	L1-07 DO YOU USE OR REFER TO TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	57	58	50	54	58	66	64	
L 702	L1-08 DO YOU USE OR REFER TO TRUTH TABLES FOR AND OR OR LOGIC SYMBOLS WITH STATE INDICATORS	56	58	49	53	57	70	64	
L 703	L1-09 DO YOU USE OR REFER TO TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS	55	57	50	49	59	68	57	
L 704	L1-10 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR AND GATES	74	77	65	78	72	78	86	
L 705	L1-11 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR OR GATES	74	77	65	78	72	78	86	
L 706	L1-12 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR NAND OR NOR GATES	72	74	62	73	71	76	86	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
L 707 L1-13 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR EXCLUSIVE OR GATES	69	72	61	70	71	70	79	
L 708 L2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO BOOLEAN EQUATIONS, LOGIC DIAGRAMS, OR LOGIC CIRCUITS	59	59	59	62	55	68	71	
L 709 L2-02 DO YOU DRAW LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUITS	21	21	19	18	21	35	7	BOOLEAN EQUATIONS
L 710 L2-03 DO YOU CONSTRUCT TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS	15	15	15	13	14	30	0	
L 711 L2-04 DO YOU DRAW LOGIC DIAGRAMS FROM GIVEN BOOLEAN EQUATIONS	31	31	28	30	29	41	29	
L 712 L2-05 DO YOU MEASURE INPUTS OR OUTPUTS OF LOGIC GATES	58	57	59	60	54	62	79	
L 713 L2-06 DO YOU DEVELOP OR ANALYZE BOOLEAN EQUATIONS IN THE PROCESS OF TROUBLESHOOTING DIGITAL CIRCUITS	37	38	30	37	36	43	43	
L 714 L2-07 DO YOU ANALYZE LOGIC CIRCUITS BY USING BOOLEAN ALGEBRA	36	37	32	36	35	38	43	
L 715 L2-08 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUIT GATES	27	26	30	22	27	38	21	
L 716 L2-09 DO YOU USE OR REFER TO TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS	17	16	20	11	17	32	7	
L 717 L2-10 DO YOU USE O REFER TO LOGIC DIAGRAMS CONSISTING OF MORE THAN ONE GATE	57	57	58	58	54	59	79	
L 718 L2-11 DO YOU COMPUTE SUM AND CARRY EXPRESSIONS FOR SERIAL HALF OR FULL ADDER LOGIC DIAGRAMS	35	35	34	40	29	43	36	
L 719 L2-12 DO YOU TRACE DATA FLOW THROUGH PARALLEL FULL ADDER LOGIC DIAGRAMS	41	39	45	50	28	49	50	
L 720 L2-13 DO YOU WORK WITH ASTABLE (FREE RUNNING) MULTIVIBRATORS	47	46	53	49	43	62	50	
L 721 L2-14 DO YOU WORK WITH BISTABLE (FLIP-FLOP) MULTIVIBRATORS	58	57	64	59	54	68	74	
L 722 L2-15 DO YOU WORK WITH MONOSTABLE (ONE-SHOT) MULTIVIBRATORS	56	56	57	59	51	66	64	
L 723 L2-16 DO YOU USE OR REFER TO FLIP-FLOP MULTIVIBRATOR SYMBOLS	58	57	59	61	53	65	79	
L 724 L2-17 DO YOU USE OR REFER TO SINGLE-SHOT MULTIVIBRATOR SYMBOLS	58	58	57	62	54	68	71	
L 725 L2-18 DO YOU USE OR REFER TO FLIP-FLOP CIRCUIT DIAGRAMS	56	56	57	57	53	65	79	
L 726 L2-19 DO YOU USE OR REFER TO FLIP-FLOP TRUTH TABLES	43	43	43	44	39	51	43	
L 727 L2-20 DO YOU USE OR REFER TO COMPLEMENTED FLIP-FLOP LOGIC SYMBOLS	51	52	49	54	47	57	64	
L 728 L2-21 DO YOU USE OR REFER TO COMPLEMENTING FLIP-FLOP LOGIC SYMBOLS	50	50	49	52	46	51	64	
L 729 L2-22 DO YOU MEASURE OUTPUT WAVESHAPES OF LOGIC CIRCUITS	58	57	64	61	54	65	71	
L 730 L2-23 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTED FLIP-FLOP SCHEMATIC DIAGRAMS	51	51	50	53	50	49	71	
L 731 L2-24 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTING FLIP-FLOP SCHEMATIC DIAGRAMS	49	50	46	52	47	49	57	
L 732 L2-25 DO YOU CONSTRUCT TRUTH TABLES FOR J-K FLIP-FLOP LOGIC SYMBOLS	27	26	32	23	23	46	36	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
L 733	L3-01 DO YOU WORK WITH DIGITAL COUNTERS IN YOUR PRESENT JOB	73	76	64	76	70	81	86	
L 734	L3-02 DO YOU USE OR REFER TO UP-COUNTERS	74	76	68	77	71	76	86	
L 735	L3-03 DO YOU USE OR REFER TO DOWN-COUNTERS	71	73	66	74	68	73	86	
L 736	L3-04 DO YOU USE OR REFER TO SERIAL COUNTERS	70	72	65	74	66	70	86	
L 737	L3-05 DO YOU USE OR REFER TO PARALLEL COUNTERS	67	67	64	70	61	70	86	COUNTERS
L 738	L3-06 DO YOU USE OR REFER TO RING COUNTERS	55	55	55	54	46	68	71	
L 739	L3-07 DO YOU USE OR REFER TO DECADE COUNTERS	41	40	45	41	32	51	57	
L 740	L3-08 DO YOU USE OR REFER TO COUNT DETECT CIRCUITS	68	70	62	70	64	76	79	
L 741	L3-09 DO YOU USE OR REFER TO DOWN CLOCKS	70	73	59	73	68	70	86	
L 742	L3-10 DO YOU USE OR REFER TO UP CLOCKS	69	71	62	69	67	70	86	
L 743	L3-11 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	61	63	54	66	59	54	57	
L 744	L3-12 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENTING FLIP-FLOPS	61	63	54	65	58	54	71	
L 745	L3-13 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF DECADE COUNTERS	39	37	47	39	30	43	57	
L 746	L3-14 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF RING COUNTERS	51	51	54	55	39	57	71	
L 747	L3-15 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE REGISTER	64	66	59	68	61	62	71	
L 748	L3-16 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	70	72	65	73	65	70	86	
L 749	L3-17 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF COUNTERS	55	55	57	59	50	62	71	
L 750	L3-18 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	50	52	45	55	47	51	43	
L 751	L3-19 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENTING FLIP-FLOPS	50	52	43	52	48	51	43	
L 752	L3-20 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE REGISTERS	52	53	46	54	50	51	50	
L 753	L3-21 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR OTHER TYPES OF COUNTERS	45	46	45	50	39	51	50	
L 754	L3-22 DO YOU CONSTRUCT TRUTH TABLES FROM LOGIC DIAGRAMS OF DECADE COUNTERS	22	21	24	16	19	38	29	
L 755	L3-23 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP IN RING COUNTERS FOR SPECIFIC INPUT PULSES	41	41	39	45	30	51	43	
L 756	L3-24 DO YOU DETERMINE THE APPROPRIATE AND GATE NECESSARY IN COUNT DETECT CIRCUITS TO INDICATE A REQUIRED COUNT	56	57	54	59	52	57	64	
M 757	M1-01 DO YOU WORK WITH SAWTOOTH WAVE GENERATORS	40	37	51	38	34	65	21	
M 758	M1-02 DO YOU WORK WITH TRAPEZOIDAL WAVE GENERATORS	18	17	22	17	11	43	14	
M 759	M1-03 DO YOU WORK WITH PULSED OSCILLATORS WITH REGENERATIVE FEEDBACK	35	32	43	34	28	49	36	TIMING CIRCUITS
M 760	M1-04 DO YOU WORK WITH PULSED OSCILLATORS WITHOUT REGENERATIVE FEEDBACK	33	30	43	35	25	43	36	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
M 761	M1-05 DO YOU WORK WITH BLOCKING OSCILLATORS	35	34	38	40	26	49	36	
M 762	M1-06 DO YOU USE OR REFER TO RISE TIME	72	71	77	76	68	68	79	
M 763	M1-07 DO YOU USE OR REFER TO FALL OR FLYBACK TIME	64	62	69	62	65	62	64	
M 764	M1-08 DO YOU USE OR REFER TO SWEEP TIME	59	58	62	59	54	68	50	
M 765	M1-09 DO YOU USE OR REFER TO ELECTRICAL LENGTH OF SAWTOOTH WAVEFORMS	32	30	36	31	29	57	14	
M 766	M1-10 DO YOU USE OR REFER TO PHYSICAL LENGTH OF SAWTOOTH WAVEFORMS	30	28	35	28	29	43	21	
M 767	M1-11 DO YOU USE OR REFER TO LINEAR SLOPE OF SAWTOOTH WAVEFORMS	27	24	38	27	19	49	21	
M 768	M1-12 DO YOU USE OR REFER TO GATE LENGTH OF SAWTOOTH WAVEFORMS	26	25	32	26	23	41	21	
M 769	M2-01 DO YOU USE SIGNAL GENERATORS IN YOUR PRESENT JOB	41	43	31	37	54	38	14	
M 770	M2-02 DO YOU PERFORM OPERATIONAL CHECKS WHILE USING SIGNAL GENERATORS	38	40	31	32	53	35	14	
M 771	M2-03 DO YOU PERFORM PERIODIC MAINTENANCE SUCH AS ADJUSTING, ALIGNING, OR CALIBRATING WHILE USING SIGNAL GENERATORS	34	34	31	28	46	35	14	USE OF SIGNAL GENERATORS
M 772	M2-04 DO YOU TROUBLESHOOT TO AN ASSEMBLY OR SUBASSEMBLY WHILE USING SIGNAL GENERATORS	35	36	31	29	50	32	14	
M 773	M2-05 DO YOU TROUBLESHOOT TO THE SMALLEST REPLACEABLE COMPONENT WHILE USING SIGNAL GENERATORS	29	30	27	25	45	19	14	
M 774	M2-06 DO YOU USE AUDIO SINE-WAVE GENERATORS	25	25	23	20	32	30	7	
M 775	M2-07 DO YOU USE AUDIO NON-SINUSOIDAL WAVE GENERATORS SUCH AS SQUARE WAVE, TRIANGLE, PULSE, OR SPIKE	23	22	28	17	33	16	14	
M 776	M2-08 DO YOU USE RF GENERATORS LESS THAN 1,000 MH	12	12	12	14	12	14	0	
M 777	M2-09 DO YOU USE RF GENERATORS GREATER THAN 1,000 MH	4	3	7	2	6	8	0	
M 778	M2-10 DO YOU USE OTHER SPECIAL PURPOSE OR MULTI-FUNCTION GENERATORS	24	26	18	21	33	24	14	
M 779	M3-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH ALTERNATING CURRENT OR DIRECT CURRENT MOTORS OR GENERATORS	57	55	62	69	56	46	57	
M 780	M3-02 DO YOU INSPECT MOTORS	55	54	59	67	56	43	57	MOTORS AND GENERATORS
M 781	M3-03 DO YOU CLEAN OR LUBRICATE MOTORS	53	53	53	68	54	41	36	
M 782	M3-04 DO YOU OPERATE MOTORS	48	47	51	57	48	43	36	
M 783	M3-05 DO YOU REMOVE OR REPLACE COMPLETE MOTORS	53	52	57	62	55	41	57	
M 784	M3-06 DO YOU REMOVE OR REPLACE MOTOR PARTS	30	30	31	37	33	27	14	
M 785	M3-07 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF MOTORS	52	51	54	61	54	43	57	
M 786	M3-08 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF MOTORS	21	21	23	23	25	19	7	
M 787	M3-09 DO YOU PERFORM ANY TASKS ON FIELD COILS	7	7	9	9	10	11	0	
M 788	M3-10 DO YOU PERFORM ANY TASKS ON ARMATURES	13	12	15	14	16	11	0	
M 789	M3-11 DO YOU PERFORM ANY TASKS ON ROTORS	13	12	16	16	14	14	7	
M 790	M3-12 DO YOU PERFORM ANY TASKS ON BRUSHES	26	25	28	39	20	19	29	
M 791	M3-13 DO YOU PERFORM ANY TASKS ON SLIP RINGS	13	13	16	20	11	14	7	
M 792	M3-14 DO YOU PERFORM ANY TASKS ON COMMUTATORS	14	13	19	21	14	11	7	
M 793	M3-15 DO YOU PERFORM ANY TASKS ON POLE PIECES	9	9	9	12	11	11	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
M 794	M3-16 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OF THE FORCE OR TORQUE CREATED BY A MOTOR	4	5	3	2	8	3	7	
M 795	M3-17 DO YOU DETERMINE OR MEASURE THE DIRECTION OF THE MECHANICAL FORCE OR TORQUE CREATED BY A MOTOR	8	8	8	4	11	8	7	
M 796	M3-18 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OR DIRECTION OF THE INDUCED VOLTAGE IN MOTORS	4	4	4	1	5	8	7	
M 797	M3-19 DO YOU WORK WITH SYNCHRONOUS MOTORS	27	25	32	23	35	30	7	
M 798	M3-20 DO YOU WORK WITH INDUCTION MOTORS	25	25	24	28	29	24	7	
M 799	M3-21 DO YOU WORK WITH SPLIT-PHASE MOTORS	15	17	9	25	11	19	0	
M 800	M3-22 DO YOU WORK WITH SOME COMBINATION OF THE ABOVE MOTORS	28	28	31	28	26	38	36	
M 801	M3-23 DO YOU INSPECT GENERATORS	16	17	12	36	4	11	0	
M 802	M3-24 DO YOU CLEAN OR LUBRICATE GENERATORS	16	17	14	37	4	5	0	
M 803	M3-25 DO YOU OPERATE GENERATORS	16	17	14	33	6	11	0	
M 804	M3-26 DO YOU REMOVE OR REPLACE COMPLETE GENERATORS	12	14	5	30	4	5	0	
M 805	M3-27 DO YOU REMOVE OR REPLACE GENERATOR PARTS	7	8	7	14	4	5	0	
M 806	M3-28 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF GENERATORS	12	12	9	26	4	5	0	
M 807	M3-29 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF GENERATORS	6	6	5	10	4	5	0	
N 808	N1-01 DO YOU WORK WITH METERS IN YOUR PRESENT JOB	74	74	72	81	73	69	71	
N 809	N1-02 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF PERMANENT MAGNETS	14	13	16	11	14	11	14	
N 810	N1-03 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF MOVING COILS	16	15	19	12	18	14	7	METER MOVEMENTS
N 811	N1-04 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF SPIRAL SPRINGS	16	16	15	14	18	11	14	
N 812	N1-05 DO YOU READ METER SCALES	74	75	72	81	72	68	79	
N 813	N1-06 DO YOU EXTEND THE RANGE OF AMMETERS	26	28	20	30	26	35	21	
N 814	N1-07 DO YOU ZERO OHMMETERS	72	73	70	77	69	68	79	
N 815	N1-08 DO YOU ZERO AMMETERS	39	38	43	41	38	41	36	
N 816	N1-09 DO YOU EXTEND THE RANGE OF VOLTMETERS	37	37	35	41	33	43	36	
N 817	N1-10 DO YOU USE OR REFER TO VOLTMETER SENSITIVITY (EXPRESSED IN UNITS OF OHMS PER VOLT)	37	38	31	39	39	43	14	
N 818	N2-01 DO YOU WORK WITH SATURABLE REACTORS OR MAGNETIC AMPLIFIERS IN YOUR PRESENT JOB	9	9	5	9	11	8	0	
N 819	N2-02 DO YOU INSPECT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	7	6	4	6	9	8	0	SATURABLE REACTORS AND MAGNETIC AMPLIFIERS
N 820	N2-03 DO YOU CLEAN MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	5	5	4	3	7	5	0	
N 821	N2-04 DO YOU ADJUST MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	5	4	5	1	6	8	0	
N 822	N2-05 DO YOU TROUBLESHOOT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	7	8	5	5	11	5	0	
N 823	N2-06 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	6	9	4	7	11	8	0	
N 824	N2-07 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIER OR SATURABLE REACTOR COMPONENTS	2	2	4	0	4	3	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
N 825	N2-08 DO YOU USE OR REFER TO HYSTERESIS CURVES OR LOOPS	3	3	1	3	4	5	0	
N 826	N2-09 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SINGLE WINDING SATURABLE REACTORS	3	3	1	3	4	5	0	
N 827	N2-10 DO YOU MEASURE OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SINGLE WINDING SATURABLE REACTORS	3	3	1	4	4	3	0	
N 828	N2-11 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS FOR MAGNETIC AMPLIFIERS	3	3	3	3	4	3	0	
N 829	N2-12 DO YOU USE OR REFER TO COERCIVE FORCE IN SATURABLE REACTORS	1	2	0	2	1	5	0	
N 830	N2-13 DO YOU USE OR REFER TO RESIDUAL MAGNETISM IN SATURABLE REACTORS	3	3	1	5	2	5	0	
N 831	N2-14 DO YOU USE OR REFER TO FLUX DENSITY IN SATURABLE REACTORS	3	3	1	4	2	8	0	
N 832	N2-15 DO YOU USE OR REFER TO POINT OF SATURATION IN SATURABLE REACTORS	5	5	3	5	6	8	0	
N 833	N2-16 DO YOU USE OR REFER TO SATURABLE REACTOR SCHEMATIC SYMBOLS	6	7	1	5	10	5	0	
N 834	N3-01 DO YOU WORK WITH WAVESHAPING CIRCUITS IN YOUR PRESENT JOB	59	57	65	58	56	59	64	
N 835	N3-02 DO YOU USE OR REFER TO TRANSIENT INTERVALS	26	24	32	22	25	38	14	
N 836	N3-03 DO YOU USE OR REFER TO PULSE WIDTH (PW)	59	57	69	56	58	59	64	WAVESHAPING CIRCUITS
N 837	N3-04 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)	57	55	64	52	57	57	57	
N 838	N3-05 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF)	52	51	58	48	51	54	57	
N 839	N3-06 DO YOU USE OR REFER TO DIFFERENTIATING CIRCUITS	43	42	45	34	48	43	29	
N 840	N3-07 DO YOU USE OR REFER TO INTEGRATING CIRCUITS	39	38	45	36	39	43	43	
N 841	N3-08 DO YOU USE OR REFER TO THE CLASSIFICATION OF TIME CONSTANTS (TC) AS LONG, MEDIUM, OR SHORT	30	29	32	26	33	30	21	
N 842	N3-09 DO YOU DETERMINE WHETHER AN LR OR RC CIRCUIT IS DIFFERENTIATING OR INTEGRATING BASED ON THE TIME CONSTANT AND OUTPUT CONFIGURATION	15	15	15	10	21	16	14	
N 843	N3-10 DO YOU WORK WITH SQUARE WAVE GENERATORS	44	41	54	34	46	54	36	
N 844	N3-11 DO YOU WORK WITH RECTANGULAR WAVE GENERATORS	25	22	38	17	25	35	29	
O 845	01-01 DO YOU WORK ON SINGLE SIDEBAND SYSTEMS IN YOUR PRESENT JOB	1	1	0	1	1	0	0	
O 846	01-02 DO YOU INSPECT SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	
O 847	01-03 DO YOU CLEAN SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	SINGLE SIDEBAND SYSTEMS
O 848	01-04 DO YOU ALIGN SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	
O 849	01-05 DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	
O 850	01-06 DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE COMPONENTS	0	0	0	0	0	0	0	
O 851	01-07 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	
O 852	01-08 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE COMPONENTS	0	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
0 853	01-09 DO YOU PERFORM TASKS ON SSB AUDIO AMPLIFIERS	0	0	0	0	0	0	0	
0 854	01-10 DO YOU PERFORM TASKS ON SSB BALANCED MODULATORS	0	0	0	0	0	0	0	
0 855	01-11 DO YOU PERFORM TASKS ON SSB CARRIER OSCILLATORS	0	0	0	0	1	0	0	
0 856	01-12 DO YOU PERFORM TASKS ON SSB LC FILTERS	0	0	0	0	1	0	0	
0 857	01-13 DO YOU PERFORM TASKS ON SSB CRYSTAL FILTERS	0	0	0	0	1	0	0	
0 858	01-14 DO YOU PERFORM TASKS ON SSB MECHANICAL FILTERS	0	0	0	0	1	0	0	
0 859	01-15 DO YOU PERFORM TASKS ON SSB OSCILLATORS	0	0	0	0	1	0	0	
0 860	01-16 DO YOU PERFORM TASKS ON SSB MIXERS	0	0	0	0	1	0	0	
0 861	01-17 DO YOU PERFORM TASKS ON SSB DRIVERS	0	0	0	0	1	0	0	
0 862	01-18 DO YOU PERFORM TASKS ON SSB POWER AMPLIFIERS	0	0	0	0	1	0	0	
0 863	01-19 DO YOU PERFORM TASKS ON SSB RF AMPLIFIERS	0	0	0	0	1	0	0	
0 864	01-20 DO YOU PERFORM TASKS ON SSB FREQUENCY CONVERTERS	0	0	0	0	1	0	0	
0 865	01-21 DO YOU PERFORM TASKS ON SSB IF AMPLIFIERS	0	0	0	0	1	0	0	
0 866	01-22 DO YOU PERFORM TASKS ON SSB DEMODULATORS	0	0	0	0	1	0	0	
0 867	01-23 DO YOU PERFORM TASKS ON SSB DON'T REMEMBER WHICH SSB SYSTEM STAGES	0	0	0	0	1	0	0	
0 868	01-24 DO YOU USE OR REFER TO SELECTIVE FADING	0	0	0	0	1	0	0	
0 869	01-25 DO YOU USE OR REFER TO PEAK POWER	0	0	0	0	1	0	0	
0 870	01-26 DO YOU USE OR REFER TO FREQUENCY STABILITY	0	0	0	0	1	0	0	
0 871	01-27 DO YOU USE OR REFER TO RESPONSE CURVES FOR BANDWIDTH FILTERS	0	0	0	0	1	0	0	
0 872	01-28 DO YOU CALCULATE PEAK POWER OR EFFECTIVE POWER OF SSB TRANSMITTERS	0	0	0	0	1	0	0	
0 873	01-29 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB TRANSMITTER SCHEMATIC DIAGRAMS	0	0	0	0	1	0	0	
0 874	01-30 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB RECEIVER SCHEMATIC DIAGRAMS	0	0	0	0	1	0	0	
0 875	02-01 DO YOU WORK ON PULSE MODULATION SYSTEMS IN YOUR PRESENT JOB	3	3	4	2	3	11	0	
0 876	02-02 DO YOU INSPECT PULSE MODULATION SYSTEMS	3	3	4	1	4	11	0	
0 877	02-03 DO YOU CLEAN PULSE MODULATION SYSTEMS	3	3	3	0	4	8	0	PULSE MODULATION SYSTEMS
0 878	02-04 DO YOU ALIGN PULSE MODULATION SYSTEMS	3	3	4	1	4	8	0	
0 879	02-05 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEMS	3	3	4	1	4	11	0	
0 880	02-06 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEM COMPONENTS	3	3	4	1	4	5	0	
0 881	02-07 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEMS	3	2	4	0	3	8	0	
0 882	02-08 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEM COMPONENTS	3	3	3	1	4	5	0	
0 883	02-09 DO YOU WORK ON PULSE-AMPLITUDE MODULATION (PAM) SYSTEMS	1	1	1	1	2	0	0	
0 884	02-10 DO YOU WORK ON PULSE-DURATION MODULATION (PDM) SYSTEMS	1	0	3	0	0	0	0	
0 885	02-11 DO YOU WORK ON PULSE-POSITION MODULATION (PPM) SYSTEMS	1	0	3	1	0	0	0	
0 886	02-12 DO YOU WORK ON PULSE-CODE MODULATION (PCM) SYSTEMS	1	0	3	0	0	0	0	
0 887	02-13 DO YOU WORK ON LINE PULSING MODULATION SYSTEMS	1	0	3	0	1	0	0	
0 888	02-14 DO YOU WORK ON DON'T REMEMBER WHICH TYPE OF MODULATION SYSTEM	2	2	1	0	3	5	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
0 889	02-15 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER SUPPLIES	2	2	3	0	2	8	0	
0 890	02-16 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM CHARGING CHOKES AND CHARGING DIODES	0	0	1	0	0	0	0	
0 891	02-17 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE FORMING NETWORKS	3	3	4	1	2	11	0	
0 892	02-18 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TIMERS	2	2	3	0	3	8	0	
0 893	02-19 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM SWITCHES SUCH AS GAS THYRATRONS	0	0	0	0	1	0	0	
0 894	02-20 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE TRANSFORMERS	2	2	1	1	2	5	0	
0 895	02-21 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TRANSMITTER TUBES	0	0	0	0	1	0	0	
0 896	02-22 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM RF AMPLIFIERS	1	1	0	0	2	3	0	
0 897	02-23 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM FREQUENCY CONVERTERS	2	2	3	1	2	8	0	
0 898	02-24 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM IF AMPLIFIERS	0	0	0	0	1	0	0	
0 899	02-25 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DETECTORS	2	1	4	1	2	3	0	
0 900	02-26 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM VIDEO AMPLIFIERS	1	1	3	0	1	5	0	
0 901	02-27 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER VIDEO AMPLIFIERS	1	1	1	1	1	3	0	
0 902	02-28 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DON'T REMEMBER WHICH PULSE MODULATION SYSTEM STAGES	1	1	0	0	2	5	0	
0 903	02-29 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF)	3	3	4	0	4	11	0	
0 904	02-30 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)	3	3	4	0	4	11	0	
0 905	02-31 DO YOU USE OR REFER TO PULSE WIDTH (PW)	3	3	4	0	4	11	0	
0 906	02-32 DO YOU USE OR REFER TO PULSE SHAPE	3	3	4	0	4	11	0	
0 907	02-33 DO YOU USE OR REFER TO PEAK POWER	2	2	1	0	4	5	0	
0 908	02-34 DO YOU USE OR REFER TO AVERAGE POWER	2	3	1	1	4	5	0	
0 909	02-35 DO YOU CALCULATE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)	3	3	1	1	3	11	0	
0 910	02-36 DO YOU MEASURE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)	3	3	4	1	3	11	0	
0 911	02-37 DO YOU USE FORMULAS TO CALCULATE AVERAGE POWER OR PEAK POWER OF PULSE MODULATION TRANSMIT SYSTEMS	1	1	0	0	3	3	0	
0 912	02-38 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION TRANSMITTER SCHEMATIC DIAGRAMS	3	3	3	1	3	8	0	
0 913	02-39 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION RECEIVER SCHEMATIC DIAGRAMS	3	2	5	1	2	8	0	
0 914	03-01 DO YOU WORK WITH ANTENNAS IN YOUR PRESENT JOB	1	1	0	2	0	0	0	ANTENNAS
0 915	03-02 DO YOU INSPECT ANTENNAS	0	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207
0 916	03-03 DO YOU CLEAN ANTENNAS	0	0	0	0	0	0	0
0 917	03-04 DO YOU PHYSICALLY ALIGN ANTENNAS	0	0	0	0	0	0	0
0 918	03-05 DO YOU ELECTRICALLY ALIGN ANTENNAS	0	0	0	0	0	0	0
0 919	03-06 DO YOU TROUBLESHOOT TO ANTENNAS	0	0	0	1	0	0	0
0 920	03-07 DO YOU TROUBLESHOOT TO ANTENNA COMPONENTS	0	0	0	0	0	0	0
0 921	03-08 DO YOU REMOVE OR INSTALL ANTENNAS	0	0	0	0	0	0	0
0 922	03-09 DO YOU REMOVE OR REPLACE COMPONENTS OF ANTENNAS	0	0	0	0	0	0	0
0 923	03-10 DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING REPRESENTATIONS OF E OR ELECTRIC FIELD LINES	0	0	0	1	0	0	0
0 924	03-11 DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING REPRESENTATIONS OF H OR MAGNETIC FIELD LINES	0	0	0	1	0	0	0
0 925	03-12 DO YOU DETERMINE THE DIRECTION OF THE MAGNETIC LINES IN RELATION TO THE ELECTRIC LINES OF FORCE FOR ANTENNAS	0	0	0	0	0	0	0
0 926	03-13 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE OF CORRECT LENGTH (HALF-WAVE) ACT AS INDUCTIVE LOADS TO THE GENERATOR	0	0	0	0	0	0	0
0 927	03-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE LONGER THAN A HALF-WAVE ACT AS INDUCTIVE LOADS TO THE GENERATOR	0	0	0	0	0	0	0
0 928	03-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE SHORTER THAN A HALF-WAVE ACT AS CAPACITIVE LOADS TO THE GENERATOR	0	0	0	0	1	0	0
0 929	03-16 DO YOU WORK WITH HERTZ ANTENNAS	0	0	0	0	1	0	0
0 930	03-17 DO YOU WORK WITH MARCONI ANTENNAS	1	1	0	1	1	0	0
0 931	03-18 DO YOU WORK WITH BROADSIDE ARRAYS	0	0	0	0	1	0	0
0 932	03-19 DO YOU WORK WITH END-FIRE ARRAYS	0	0	0	0	1	0	0
0 933	03-20 DO YOU WORK WITH CARDIOID ARRAYS	0	0	0	0	1	0	0
0 934	03-21 DO YOU WORK WITH COLLINEAR ARRAYS	1	1	0	1	1	0	0
0 935	03-22 DO YOU USE OR REFER TO THE TERM ELECTROMAGNETIC INDUCTION FIELDS WHEN WORKING WITH ANTENNAS	1	1	0	1	1	0	0
0 936	03-23 DO YOU MEASURE ELECTROMAGNETIC INDUCTION FIELDS OF ANTENNAS	1	0	1	0	1	0	0
0 937	03-24 DO YOU USE OR REFER TO THE TERM ELECTROMAGNETIC RADIATION FIELDS WHEN WORKING WITH ANTENNAS	1	1	0	1	1	0	0
0 938	03-25 DO YOU MEASURE ELECTROMAGNETIC RADIATION FIELDS OF ANTENNAS	1	1	0	0	2	0	0
0 939	03-26 DO YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA RADIATION	0	0	0	0	1	0	0
0 940	03-27 DO YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA INDUCTION FIELD	0	0	0	0	1	0	0
0 941	03-28 ARE ANY OF THE ANTENNAS YOU WORK ON LINEARLY POLARIZED	1	1	0	1	1	0	0
0 942	03-29 ARE ANY OF THE ANTENNAS YOU WORK ON CIRCULARLY POLARIZED	0	0	0	0	1	0	0
0 943	03-30 DO YOU MEASURE OR DETERMINE THE POLARITY OF ANTENNAS YOU WORK ON	0	0	0	0	1	0	0
0 944	03-31 DO YOU CONSTRUCT, OR MAKE THE CALCULATIONS NECESSARY TO CONSTRUCT, ANTENNAS OF CORRECT LENGTH FOR SPECIFIC WAVELENGTHS	0	0	0	0	1	0	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207
O 945	03-32 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS	0	0	0	0	0	0	0
O 946	03-33 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS DIRECTORS	0	0	0	0	0	0	0
O 947	03-34 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS REFLECTORS	0	0	0	0	0	0	0
O 948	03-35 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN DON'T REMEMBER WHAT KIND OF ELEMENTS	0	0	0	1	0	0	0
O 949	03-36 DO YOU WORK ON UNIDIRECTIONAL ANTENNAS	0	0	0	1	0	0	0
O 950	03-37 DO YOU WORK ON BIDIRECTIONAL ANTENNAS	0	0	0	0	0	0	0
O 951	03-38 DO YOU WORK ON DON'T REMEMBER THE DIRECTIONALITY	0	0	0	0	0	0	0
O 952	03-39 DO YOU WORK WITH ROTAR ANTENNA ARRAYS	0	0	0	0	0	0	0
P 953	PI-01 IN YOUR PRESENT JOB DO YOU WORK WITH TRANSMISSION LINES (TRANSMISSION LINES ARE DEFINED TO INCLUDE LEADS BETWEEN RECEIVERS AND ANTENNAS, TELEPHONE LEADS, AS WELL AS HIGH VOLTAGE POWER LINES, ETC. DO NOT CONSIDER WAVEGUIDES AS TRANSMISSION LINES	5	4	7	9	2	0	0
P 954	PI-02 DO YOU REFER TO OR USE COPPER LOSS OR I2R LOSS IN TRANSMISSION LINES	0	0	1	0	0	0	0
P 955	PI-03 DO YOU REFER TO OR USE SKIN EFFECTS OF HIGH FREQUENCY CURRENTS IN TRANSMISSION LINES	1	0	1	1	0	0	0
P 956	PI-04 DO YOU REFER TO OR USE RADIATION LOSS IN TRANSMISSION LINES	0	0	1	0	0	0	0
P 957	PI-05 DO YOU USE OR REFER TO DIELECTRIC LOSS IN TRANSMISSION LINES	1	0	1	0	1	0	0
P 958	PI-06 DO YOU USE OR REFER TO LEAKAGE LOSSES IN TRANSMISSION LINES	1	0	1	0	1	0	0
P 959	PI-07 DO YOU WORK WITH TWISTED PAIR TRANSMISSION LINES	2	1	4	3	1	0	0
P 960	PI-08 DO YOU WORK WITH TWIN LEAD TRANSMISSION LINES	1	1	4	1	1	0	0
P 961	PI-09 DO YOU WORK WITH OPEN TWO-WIRE TRANSMISSION LINES	1	0	3	0	1	0	0
P 962	PI-10 DO YOU WORK WITH FLEXIBLE COAXIAL CABLE TRANSMISSION LINES	4	3	7	7	1	0	0
P 963	PI-11 DO YOU WORK WITH RIGID COAXIAL CABLE TRANSMISSION LINES	2	1	3	3	1	0	0
P 964	PI-12 DO YOU TROUBLESHOOT TRANSMISSION LINES	2	2	4	4	1	0	0
P 965	PI-13 DO YOU ANALYZE VOLTAGE OR CURRENT WAVEFORMS IN TRANSMISSION LINES TO DETERMINE THE TYPE OF TERMINATION (OPEN, SHORTED, CAPACITIVE, INDUCTIVE)	1	1	1	1	2	0	0
P 966	PI-14 DO YOU SELECT APPROPRIATE TRANSMISSION LINES TERMINATIONS TO ACHIEVE DESIRED WAVEFORMS	2	1	3	3	1	0	0
P 967	PI-15 DO YOU USE OR REFER TO SCHEMATIC SYMBOLS FOR LINE TERMINATIONS IN TERMS OF CIRCUIT TERMINATIONS	3	2	5	5	1	0	0
P 968	PI-16 DO YOU MEASURE STANDING WAVE RATIOS (SR) OF TRANSMISSION LINES	1	1	0	1	1	0	0
P 969	PI-17 DO YOU CALCULATE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES	1	1	0	1	1	0	0
P 970	PI-18 DO YOU PERFORM THE CALCULATIONS NECESSARY TO DETERMINE THE IMPEDANCE AND LENGTH OF QUARTER - WAVELENGTH MATCHING TRANSFORMERS TO MATCH TRANSMISSION LINES TO LOADS	0	0	0	0	1	0	0

TRANSMISSION LINES

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
P 971	P1-19 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING MATCHING TRANSFORMERS	3	3	3	4	3	0	0	
P 972	P1-20 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING DELTA MATCHING	1	0	1	0	1	0	0	
P 973	P1-21 DO YOU SELECT THE TYPE OF TRANSMISSION LINE NEEDED FOR PARTICULAR JOBS WITHOUT REFERRING TO TECHNICAL DATA	1	1	0	1	1	0	0	
P 974	P1-22 DO YOU USE OR REFER TO THE TERM CHARACTERISTIC IMPEDANCE (ZO) OF TRANSMISSION LINES	2	1	4	0	3	0	0	
P 975	P1-23 DO YOU CALCULATE THE CHARACTERISTIC IMPEDANCE (ZO) OF TRANSMISSION LINES	0	0	1	0	0	0	0	
P 976	P1-24 DO YOU USE OR REFER TO THE TERM CUTOFF FREQUENCY OF TRANSMISSION LINES	1	0	1	1	0	0	0	
P 977	P1-25 DO YOU USE OR REFER TO THE TERM VELOCITY FACTOR (K) OF TRANSMISSION LINES	0	0	0	1	0	0	0	
P 978	P1-26 DO YOU COMPUTE THE ELECTRICAL LENGTH OF TRANSMISSION LINES FOR PARTICULAR FREQUENCIES	0	0	0	1	0	0	0	
P 979	P1-27 DO YOU CONSTRUCT TRANSMISSION LINES OF PARTICULAR ELECTRICAL LENGTH FOR GIVEN FREQUENCIES	0	0	0	0	0	0	0	
P 980	P1-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT AS THE FREQUENCY INCREASES AND THE PHYSICAL LENGTH OF TRANSMISSION LINES REMAIN CONSTANT, THE ELECTRICAL LENGTH INCREASES	0	0	1	0	0	0	0	
P 981	P1-29 DO YOU WORK WITH NONRESONANT (FLAT) TRANSMISSION LINES	1	1	3	1	1	0	0	
P 982	P1-30 DO YOU WORK WITH RESONANT TRANSMISSION LINES	0	0	0	1	0	0	0	
P 983	P1-31 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING STUB MATCHING	0	0	1	0	0	0	0	
P 984	P2-01 DO YOU WORK WITH WAVEGUIDES OR CAVITY RESONATORS IN YOUR PRESENT JOB	0	0	0	1	0	0	0	
P 985	P2-02 DO YOU INSPECT WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0	0	0	0	
P 986	P2-03 DO YOU CLEAN WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0	0	0	0	
P 987	P2-04 DO YOU BEND WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0	0	0	0	
P 988	P2-05 DO YOU TWIST WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0	0	0	0	WAVEGUIDES AND CAVITY RESONATORS
P 989	P2-06 DO YOU PRESSURIZE WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0	0	0	0	
P 990	P2-07 DO YOU PURGE WAVEGUIDES OR CAVITY RESONATORS	0	0	0	0	0	0	0	
P 991	P2-08 DO YOU TROUBLESHOOT WAVEGUIDES OR CAVITY RESONATORS	0	0	0	1	0	0	0	
P 992	P2-09 DO YOU REMOVE OR INSTALL COMPLETE WAVEGUIDES	0	0	0	0	0	0	0	
P 993	P2-10 DO YOU REMOVE OR INSTALL WAVEGUIDE SECTIONS	0	0	0	0	0	0	0	
P 994	P2-11 DO YOU REMOVE OR INSTALL DUMMY LOADS	0	0	0	0	0	0	0	
P 995	P2-12 DO YOU REMOVE OR INSTALL E BENDS	0	0	0	0	0	0	0	
P 996	P2-13 DO YOU REMOVE OR INSTALL H BENDS	0	0	0	0	0	0	0	
P 997	P2-14 DO YOU REMOVE OR INSTALL OTHER BENDS	0	0	0	0	0	0	0	
P 998	P2-15 DO YOU REMOVE OR INSTALL CHOKE JOINTS	0	0	0	0	0	0	0	
P 999	P2-16 DO YOU REMOVE OR INSTALL ROTATING JOINTS	0	0	0	0	0	0	0	
P1000	P2-17 DO YOU REMOVE OR INSTALL DIRECTIONAL COUPLERS	0	0	0	0	0	0	0	
P1001	P2-18 DO YOU REMOVE OR INSTALL BIDIRECTIONAL COUPLERS	0	0	0	0	0	0	0	
P1002	P2-19 DO YOU USE OR REFER TO "A" WALL OF WAVEGUIDES	0	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207
P1003	P2-20 DO YOU USE OR REFER TO "B" WALL OF WAVEGUIDES	0	0	0	0	0	0	0
P1004	P2-21 DO YOU USE OR REFER TO CUTOFF FREQUENCY OF WAVEGUIDES	0	0	0	0	0	0	0
P1005	P2-22 DO YOU USE OR REFER TO FREQUENCY-DETERMINING WALL OF WAVEGUIDES	0	0	0	0	0	0	0
P1006	P2-23 DO YOU USE OR REFER TO POWER-DETERMINING WALL OF WAVEGUIDES	0	0	0	0	0	0	0
P1007	P2-24 DO YOU USE OR REFER TO ELECTRIC FIELD BOUNDARY CONDITIONS	0	0	0	0	0	0	0
P1008	P2-25 DO YOU USE OR REFER TO MAGNETIC FIELD BOUNDARY CONDITIONS	0	0	0	0	0	0	0
P1009	P2-26 DO YOU USE OR REFER TO DUPLEXER FIELD BOUNDARY CONDITIONS	0	0	0	0	0	0	0
P1010	P2-27 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST WAVEGUIDES ARE MADE WITH A "B" WALL SIZE OF .7 WAVELENGTHS OF THE OPERATING FREQUENCY	0	0	0	1	0	0	0
P1011	P2-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST "A" WALLS RANGE FROM .2 TO .5 WAVELENGTHS IN SIZE, WITH .35 USED AS AN AVERAGE	0	0	0	0	0	0	0
P1012	P2-29 ARE YOU CONCERNED WITH THE MATERIAL (SUCH AS BRASS) WHICH WAVEGUIDES ARE MADE OF	0	0	0	0	0	0	0
P1013	P2-30 DO YOU COMPUTE THE LENGTH OF A WAVEGUIDE FOR SPECIFIC INSTALLATION	0	0	0	0	0	0	0
P1014	P2-31 DO YOU USE THE RIGHT HAND RULE TO DETERMINE THE DIRECTION OF PROPAGATION, DIRECTION OF "E" FIELD, OR DIRECTION OF "H" FIELD IN WAVEGUIDES	0	0	0	0	0	0	0
P1015	P2-32 DO YOU USE OR REFER TO THE TIME PHASE OF PEAK "E" OR "H" LINES IN WAVEGUIDES	0	0	0	0	0	0	0
P1016	P2-33 DO YOU MEASURE THE TIME PHASE OF "E" OR "H" LINES IN WAVEGUIDES	0	0	0	0	0	0	0
P1017	P2-34 DO YOU USE OR REFER TO THE SPACE QUADRATURE OF "E" OR "H" LINES IN WAVEGUIDES	0	0	0	0	0	0	0
P1018	P2-35 ARE HIGH POWER PROBES USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0	0	0	0	0
P1019	P2-36 ARE LOW POWER PROBES USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0	0	0	0	0
P1020	P2-37 ARE LOOPS USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0	0	0	0	0
P1021	P2-38 ARE APERTURES (WINDOWS OR IRISES) USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0	0	0	0	0
P1022	P2-39 ARE DON'T REMEMBER THE KIND OF ENERGY COUPLING USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0	0	0	0	0
P1023	P2-40 DO YOU DETERMINE WHERE PROBES SHOULD BE MOUNTED IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO TECHNICAL DATA	0	0	0	0	0	0	0
P1024	P2-41 DO YOU DETERMINE THE POSITIONING OF LOOPS IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO TECHNICAL DATA	0	0	0	0	0	0	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
P1025	P2-42 DO YOU DETERMINE THE POSITIONING OR SIZE OF APERTURES IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO TECHNICAL DATA	0	0	0	0	0	0	0	
P1026	P2-43 ARE CHOKE JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0	0	0	0	0	
P1027	P2-44 ARE ROTATING JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0	0	1	0	0	
P1028	P2-45 ARE DON'T REMEMBER THE KIND OF JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0	0	1	0	0	
P1029	P2-46 DO YOU TUNE CAVITY RESONATORS USING CAPACITIVE TUNING	0	0	0	0	1	0	0	
P1030	P2-47 DO YOU TUNE CAVITY RESONATORS USING INDUCTIVE TUNING	0	0	0	0	1	0	0	
P1031	P2-48 DO YOU TUNE CAVITY RESONATORS USING VOLUME TUNING	0	0	0	0	1	0	0	
P1032	P2-49 DO YOU TUNE CAVITY RESONATORS USING DON'T REMEMBER THE METHOD OF TUNING	0	0	0	0	1	0	0	
P1033	P2-50 DO YOU MEASURE THE FREQUENCY OF SIGNALS IN CAVITY RESONATORS	0	0	0	0	1	0	0	
P1034	P3-01 IN YOUR PRESENT JOB DO YOU WORK WITH KLYSTRONS, TRAVELING WAVE TUBES (TWT), PARAMETRIC AMPLIFIERS, OR MAGNETRONS	1	1	0	1	1	0	0	
P1035	P3-02 DO YOU USE OR REFER TO INTERELECTRODE CAPACITANCE	0	0	0	0	1	0	0	MICROWAVE AMPLIFIERS AND OSCILLATORS
P1036	P3-03 DO YOU USE OR REFER TO ELECTRON TRANSIT TIME	0	0	0	0	1	0	0	
P1037	P3-04 DO YOU USE OR REFER TO LEAD INDUCTANCE	0	0	0	0	1	0	0	
P1038	P3-05 DO YOU USE OR REFER TO RF LOSSES IN EXTERNAL CIRCUITRY	0	0	0	0	1	0	0	
P1039	P3-06 DO YOU USE OR REFER TO PRINCIPLE OF ELECTRON VELOCITY MODULATION	0	0	0	0	0	0	0	
P1040	P3-07 DO YOU USE OR REFER TO ELECTRON BUNCHING	0	0	0	0	0	0	0	
P1041	P3-08 DO YOU WORK WITH TWO-CAVITY KLYSTRONS	0	0	0	0	0	0	0	
P1042	P3-09 DO YOU WORK WITH THREE-CAVITY KLYSTRONS	0	0	0	0	0	0	0	
P1043	P3-10 DO YOU WORK WITH REFLEX KLYSTRONS	0	0	0	0	0	0	0	
P1044	P3-11 DO YOU WORK WITH TRAVELING-WAVE TUBES (TWT)	0	0	0	0	0	0	0	
P1045	P3-12 DO YOU WORK WITH NONDEGENERATIVE PARAMETRIC AMPLIFIERS	0	0	0	0	0	0	0	
P1046	P3-13 DO YOU WORK WITH UP-CONVERTER PARAMETRIC AMPLIFIERS	0	0	0	0	0	0	0	
P1047	P3-14 DO YOU WORK WITH MAGNETRONS	0	0	0	0	0	0	0	
P1048	P3-15 DO YOU INSPECT KLYSTRONS OR TWT	0	0	0	0	0	0	0	
P1049	P3-16 DO YOU CLEAN KLYSTRONS OR TWT	0	0	0	0	0	0	0	
P1050	P3-17 DO YOU TUNE KLYSTRONS OR TWT ELECTRICALLY	0	0	0	0	0	0	0	
P1051	P3-18 DO YOU TUNE KLYSTRONS OR TWT MECHANICALLY	0	0	0	0	0	0	0	
P1052	P3-19 DO YOU PERFORM OPERATIONAL CHECKS OF KLYSTRONS OR TWT	0	0	0	0	0	0	0	
P1053	P3-20 DO YOU TROUBLESHOOT KLYSTRONS OR TWT	0	0	0	0	0	0	0	
P1054	P3-21 DO YOU REMOVE OR REPLACE COMPLETE KLYSTRON OR TWT	0	0	0	0	0	0	0	
P1055	P3-22 DO YOU REMOVE OR REPLACE KLYSTRON OR TWT COMPONENTS	0	0	0	0	0	0	0	
P1056	P3-23 DO YOU INSPECT PARAMETRIC AMPLIFIERS	0	0	0	0	1	0	0	
P1057	P3-24 DO YOU CLEAN PARAMETRIC AMPLIFIERS	0	0	0	0	1	0	0	
P1058	P3-25 DO YOU ADJUST PARAMETRIC AMPLIFIERS	0	0	0	0	1	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207
P1059	P3-26 DO YOU TUNE PARAMETRIC AMPLIFIERS	0	0	0	0	1	0	0
P1060	P3-27 DO YOU PERFORM OPERATIONAL CHECKS OF PARAMETRIC AMPLIFIERS	0	0	0	0	1	0	0
P1061	P3-28 DO YOU TROUBLESHOOT PARAMETRIC AMPLIFIERS	0	0	0	0	1	0	0
P1062	P3-29 DO YOU REMOVE OR REPLACE COMPLETE PARAMETRIC AMPLIFIER	0	0	0	0	1	0	0
P1063	P3-30 DO YOU REMOVE OR REPLACE PARAMETRIC AMPLIFIER COMPONENTS	0	0	0	0	1	0	0
P1064	P3-31 DO YOU INSPECT MAGNETRONS	0	0	0	0	1	0	0
P1065	P3-32 DO YOU CLEAN MAGNETRONS	0	0	0	0	1	0	0
P1066	P3-33 DO YOU ADJUST MAGNETRONS	0	0	0	0	1	0	0
P1067	P3-34 DO YOU TUNE MAGNETRONS	0	0	0	0	1	0	0
P1068	P3-35 DO YOU PERFORM OPERATIONAL CHECKS OF MAGNETRONS	0	0	0	0	1	0	0
P1069	P3-36 DO YOU TROUBLESHOOT MAGNETRONS	0	0	0	0	1	0	0
P1070	P3-37 DO YOU REMOVE OR REPLACE COMPLETE MAGNETRON	0	0	0	0	1	0	0
P1071	P3-38 DO YOU REMOVE OR REPLACE MAGNETRON COMPONENTS	0	0	0	0	1	0	0
P1072	P3-39 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS COLLECTOR PLATES	0	0	0	0	1	0	0
P1073	P3-40 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER CAVITIES	0	0	0	0	1	0	0
P1074	P3-41 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER GRIDS	0	0	0	0	1	0	0
P1075	P3-42 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS FEEDBACK LOOPS	0	0	0	0	0	0	0
P1076	P3-43 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS DRIFT SPACES	0	0	0	0	0	0	0
P1077	P3-44 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS BUNCHER GRIDS	0	0	0	0	0	0	0
P1078	P3-45 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS BUNCHER CAVITIES	0	0	0	0	0	0	0
P1079	P3-46 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CONTROL GRIDS	0	0	0	0	0	0	0
P1080	P3-47 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATHODES	0	0	0	0	0	0	0
P1081	P3-48 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON REPELLER (REFLECTOR) PLATES	0	0	0	0	0	0	0
P1082	P3-49 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRIDS	0	0	1	0	0	0	0
P1083	P3-50 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRID CAVITY GAPS	0	0	0	0	0	0	0
P1084	P3-51 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON RESONANT CAVITIES	0	0	0	0	0	0	0
P1085	P3-52 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON MAGNETIC COUPLING LOOPS	0	0	0	0	0	0	0
P1086	P3-53 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON FILAMENTS	0	0	0	0	0	0	0
P1087	P3-54 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON CATHODES	0	0	0	0	0	0	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
P1088	P3-55 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON OUTPUT LEADS	0	0	0	0	0	0	0	
P1089	P3-56 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES FILAMENTS	0	0	0	0	0	0	0	
P1090	P3-57 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES CATHODES	0	0	0	0	0	0	0	
P1091	P3-58 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MODULATOR GRIDS	0	0	0	0	0	0	0	
P1092	P3-59 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ANODES	0	0	0	0	0	0	0	
P1093	P3-60 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES HELIXES	0	0	0	0	0	0	0	
P1094	P3-61 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES COLLECTORS	0	0	0	0	0	0	0	
P1095	P3-62 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MAGNETS	0	0	0	0	0	0	0	
P1096	P3-63 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ATTENUATORS	0	0	0	0	0	0	0	
P1097	P3-64 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE CIRCULATORS	0	0	0	0	0	0	0	
P1098	P3-65 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER SIGNAL CAVITIES	0	0	0	0	0	0	0	
P1099	P3-66 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER IDLER CAVITIES	0	0	0	0	0	0	0	
P1100	P3-67 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER VARACTOR DIODES	0	0	0	0	0	0	0	
P1101	P3-68 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE ISOLATORS	0	0	0	0	0	0	0	
P1102	P3-69 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER REVERSE-BIAS BATTERIES	0	0	0	0	0	0	0	
P1103	P3-70 DO YOU PERFORM TASKS ON ANODES	0	0	0	0	0	0	0	
P1104	P3-71 DO YOU PERFORM TASKS ON ANODE COOLING PINS	0	0	0	0	0	0	0	
P1105	P3-72 DO YOU PERFORM TASKS ON COUPLING LOOPS	0	0	0	0	0	0	0	
P1106	P3-73 DO YOU PERFORM TASKS ON HEATER LEADS	0	0	0	0	0	0	0	
P1107	P3-74 DO YOU PERFORM TASKS ON RESONANT CAVITIES	0	0	0	0	0	0	0	
P1108	P3-75 DO YOU PERFORM TASKS ON CATHODES	0	0	0	0	0	0	0	
P1109	P3-76 DO YOU PERFORM TASKS ON MAGNETS	0	0	0	0	0	0	0	
Q1110	Q1-01 DO YOU USE OR REFER TO STORAGE REGISTERS	81	81	80	88	74	73	93	
Q1111	Q1-02 DO YOU USE OR REFER TO SHIFT REGISTERS	79	80	78	86	73	73	93	
Q1112	Q1-03 DO YOU USE OR REFER TO LOGIC SYMBOLS OF SHIFT REGISTERS	75	75	76	75	73	73	93	REGISTERS
Q1113	Q1-04 DO YOU USE OR REFER TO LOGIC SYMBOLS OF STORAGE REGISTERS	75	75	76	76	73	70	93	
Q1114	Q1-05 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	76	75	77	85	68	62	86	
Q1115	Q1-06 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF REGISTERS	75	75	74	86	64	62	86	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
01116	Q1-07 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP OF A SHIFT REGISTER AFTER A SPECIFIED NUMBER OF SHIFT PULSES HAVE PASSED	61	63	53	68	61	51	71	
01117	Q2-01 DO YOU WORK WITH DIGITAL COUNTERS, REGISTERS, OR STORAGE DEVICES IN YOUR PRESENT JOB	77	78	74	87	66	81	86	
01118	Q2-02 DO YOU USE OR REFER TO DELAY LINES	58	55	68	75	34	62	57	
01119	Q2-03 DO YOU USE OR REFER TO MAGNETIC CORES	73	76	65	87	61	84	93	
01120	Q2-04 DO YOU USE OR REFER TO MAGNETIC DRUMS	38	42	26	49	35	38	36	STORAGE DEVICES
01121	Q2-05 DO YOU USE OR REFER TO MAGNETIC TAPES	60	61	59	60	57	81	93	
01122	Q2-06 DO YOU USE OR REFER TO ACCESS TIME OR SPEED OR MEMORY SYSTEMS	59	61	53	78	41	59	64	
01123	Q2-07 DO YOU USE OR REFER TO WORD CAPACITY OF MEMORY SYSTEMS	70	71	68	83	56	78	93	
01124	Q2-08 DO YOU USE OR REFER TO VOLATILITY OF MEMORY SYSTEMS	53	53	54	62	41	68	57	
01125	Q2-09 DO YOU USE OR REFER TO LOGIC SYMBOL OF DELAY LINES	54	52	62	70	36	57	57	
01126	Q3-01 IN YOUR PRESENT JOB, DO YOU WORK WITH DIGITAL-TO-ANALOG (D/A) CONVERTERS, ANALOG-TO-DIGITAL (A/D) CONVERTERS, OR BINARY-TO-DECIMAL READOUT CONVERTERS	45	43	49	48	29	59	57	
01127	Q3-02 DO YOU COMPUTE OUTPUT VOLTAGES FOR ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A) CONVERTERS FOR GIVEN INPUT VOLTAGES	19	20	16	21	15	16	7	DIGITAL TO ANALOG CONVERTERS
01128	Q3-03 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE COUNT IN ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A) CONVERTERS IS DETERMINED BY ADDING THE DENOMINATORS OF THE RESISTORS	16	16	14	17	13	19	7	
01129	Q3-04 DO YOU COMPUTE ANALOG VOLTAGES FOR GIVEN BINARY COUNTS IN ELECTRONIC DIGITAL-TO-ANALOG (D/A) CONVERTERS	20	20	20	21	15	27	21	
01130	Q3-05 DO YOU PERFORM SAMPLE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	9	8	12	8	8	5	14	
01131	Q3-06 DO YOU PERFORM HOLD FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	9	9	9	9	9	11	14	
01132	Q3-07 DO YOU PERFORM COMPARE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	11	11	14	11	9	14	14	
01133	Q3-08 DO YOU PERFORM DIGITIZE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	9	9	11	10	7	11	14	
01134	Q3-09 DO YOU PERFORM DON'T REMEMBER WHICH FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	15	13	19	14	8	16	29	
01135	Q3-10 DO YOU USE OR REFER TO SAMPLE FUNCTION OF A/D CONVERTERS	11	11	15	6	10	14	21	
01136	Q3-11 DO YOU USE OR REFER TO HOLD FUNCTION OF A/D CONVERTERS	10	10	11	7	10	11	14	
01137	Q3-12 DO YOU USE OR REFER TO COMPARE FUNCTION OF A/D CONVERTERS	13	12	15	10	11	14	14	
01138	Q3-13 DO YOU USE OR REFER TO DIGITAL FUNCTION OF A/D CONVERTERS	15	13	22	11	10	16	21	
01139	Q3-14 DO YOU PERFORM ANY TASKS ON MECHANICAL ANALOG-TO-DIGITAL (A/D) CONVERTERS	16	15	19	18	10	24	14	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
R1140	R1-01 DO YOU WORK WITH PHANTASTRON CIRCUITRY IN YOUR PRESENT JOB	0	0	0	0	1	0	0	PHANTASTRONS
R1141	R2-01 IN YOUR PRESENT JOB DO YOU WORK WITH SCHMITT TRIGGER CIRCUITS	58	58	57	54	61	62	64	SCHMITT TRIGGERS
R1142	R2-02 DO YOU TRACE DATA FLOW THROUGH SCHMITT TRIGGER SCHEMATIC DIAGRAMS	46	46	46	39	54	49	57	
R1143	R2-03 DO YOU USE OR REFER TO SCHMITT TRIGGER LOGIC SYMBOLS	55	56	54	50	60	65	64	
R1144	R3-01 IN YOUR PRESENT JOB DO YOU FABRICATE MULTICONDUCTOR CABLES	32	31	36	40	18	43	57	CABLE FABRICATION
R1145	R3-02 DO YOU FABRICATE COAXIAL CABLES	33	31	39	45	16	41	50	
S1146	S1-01 IN YOUR PRESENT JOB DO YOU PERFORM ANY TASKS ON VISUAL READOUT SYSTEMS	61	58	73	65	46	84	79	INPUT/OUTPUT DEVICES
S1147	S1-02 DO YOU PERFORM ANY TASKS ON NIXIE LIGHTS OR NIXIE LIGHT DECODER SYSTEMS	24	24	48	30	10	27	29	
S1148	S1-03 DO YOU ANALYZE NIXIE LIGHT DECODER SYSTEMS USING BOOLEAN ALGEBRA	11	11	9	13	5	19	0	
S1149	S2-01 DO YOU WORK WITH PHOTO TUBES IN YOUR PRESENT JOB	30	31	27	50	14	49	21	PHOTO SENSITIVE DEVICES
S1150	S3-01 IN YOUR PRESENT JOB DO YOU WORK WITH CHOPPER CIRCUITS	3	3	3	5	1	3	0	
S1151	S3-02 DO YOU MEASURE EXCITATION FREQUENCIES	1	2	0	1	1	3	0	
S1152	S3-03 DO YOU MEASURE VOLTAGE-CURRENT PHASE RELATIONSHIPS	1	1	0	0	1	3	0	
S1153	S3-04 DO YOU USE OR REFER TO EXCITATION FREQUENCIES	1	1	0	1	1	0	0	
S1154	S3-05 DO YOU USE OR REFER TO VOLTAGE-CURRENT PHASE RELATIONSHIPS	1	1	0	0	1	0	0	SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)
S1155	S3-06 DO YOU USE SERVOS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	2	3	1	4	0	3	0	
S1156	S3-07 DO YOU USE DETECTORS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	2	2	1	2	1	3	0	
S1157	S3-08 DO YOU USE ERROR SIGNAL DEVICES IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	2	2	3	3	0	3	0	
S1158	S3-09 DO YOU USE COMPARISON CIRCUITS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	2	2	1	2	0	3	0	
T1159	T1-01 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH INFRARED SYSTEMS	0	0	1	0	0	0	7	
T1160	T1-02 DO YOU INSPECT INFRARED SYSTEMS	0	0	0	0	0	0	0	
T1161	T1-03 DO YOU CLEAN INFRARED SYSTEMS	0	0	0	0	1	0	0	INFRARED
T1162	T1-04 DO YOU ADJUST OR CALIBRATE INFRARED SYSTEMS	0	0	0	0	0	0	0	
T1163	T1-05 DO YOU OPERATE INFRARED SYSTEMS	0	0	0	0	0	0	0	
T1164	T1-06 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF INFRARED SYSTEMS	0	0	1	0	0	0	7	
T1165	T1-07 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF INFRARED SYSTEMS	0	0	1	0	0	0	7	
T1166	T1-08 DO YOU TROUBLESHOOT DOWN TO INFRARED SYSTEM COMPONENT PARTS	0	0	0	0	0	0	0	
T1167	T1-09 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF INFRARED SYSTEMS	0	0	1	0	0	0	7	
T1168	T1-10 DO YOU REMOVE OR REPLACE INFRARED SYSTEM COMPONENT PARTS	0	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
T1169	T1-11 DO YOU USE OR REFER TO FAR REGION	0	0	0	0	0	0	0	
T1170	T1-12 DO YOU USE OR REFER TO INTERMEDIATE REGION	0	0	0	0	0	0	0	
T1171	T1-13 DO YOU USE OR REFER TO NEAR REGION	0	0	0	0	0	0	0	
T1172	T1-14 DO YOU USE OR REFER TO MICRON	0	0	0	0	0	0	0	
T1173	T1-15 DO YOU USE OR REFER TO GRAY BODIES	0	0	0	0	0	0	0	
T1174	T1-16 DO YOU USE OR REFER TO BLACK BODIES	0	0	0	0	0	0	0	
T1175	T1-17 DO YOU USE OR REFER TO ABSORPTION	0	0	0	0	0	0	0	
T1176	T1-18 DO YOU USE OR REFER TO SCATTERING	0	0	0	0	0	0	0	
T1177	T1-19 DO YOU USE OR REFER TO ABSOLUTE ZERO	0	0	0	0	0	0	0	
T1178	T1-20 DO YOU PERFORM TASKS ON BLITZ	0	0	0	0	0	0	0	
T1179	T1-21 DO YOU PERFORM TASKS ON TARGET BUTTONS	0	0	0	0	0	0	0	
T1180	T1-22 DO YOU PERFORM TASKS ON ERECTOR LENSES	0	0	0	0	0	0	0	
T1181	T1-23 DO YOU PERFORM TASKS ON OCULAR LENSES	0	0	0	0	0	0	0	
T1182	T1-24 DO YOU PERFORM TASKS ON CORRECTION LENSES	0	0	0	0	0	0	0	
T1183	T1-25 DO YOU PERFORM TASKS ON FILTERS	0	0	0	0	0	0	0	
T1184	T1-26 DO YOU PERFORM TASKS ON SPHERICAL MIRRORS	0	0	0	0	0	0	0	
T1185	T1-27 DO YOU PERFORM TASKS ON PLANE MIRRORS	0	0	0	0	0	0	0	
T1186	T2-01 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH LASERS	0	0	0	0	0	0	0	
T1187	T2-02 DO YOU INSPECT LASER SYSTEMS	0	0	0	0	0	0	0	
T1188	T2-03 DO YOU CLEAN LASER SYSTEMS	0	0	0	0	0	0	0	
T1189	T2-04 DO YOU OPERATE LASER SYSTEMS	0	0	0	0	0	0	0	
T1190	T2-05 DO YOU OPERATE LASER SYSTEMS	0	0	0	0	0	0	0	LASERS
T1191	T2-06 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF LASER SYSTEMS	0	0	0	0	0	0	0	
T1192	T2-07 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF LASER SYSTEMS	0	0	0	0	0	0	0	
T1193	T2-08 DO YOU TROUBLESHOOT TO COMPONENT PARTS OF LASER SYSTEMS	0	0	0	0	0	0	0	
T1194	T2-09 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF LASER SYSTEMS	0	0	0	0	0	0	0	
T1195	T2-10 DO YOU REMOVE OR REPLACE COMPONENT PARTS OF LASER SYSTEMS	0	0	0	0	0	0	0	
T1196	T2-11 DO YOU USE OR REFER TO ANGSTROMS (A)	0	0	0	0	0	0	0	
T1197	T2-12 DO YOU USE OR REFER TO ELECTRON ENERGY LEVELS	0	0	0	0	0	0	0	
T1198	T2-13 DO YOU USE OR REFER TO GROUND STATE	0	0	0	0	0	0	0	
T1199	T2-14 DO YOU USE OR REFER TO EXCITED STATE	0	0	0	0	0	0	0	
T1200	T2-15 DO YOU USE OR REFER TO PACKET OF RADIATION	0	0	0	0	0	0	0	
T1201	T2-16 DO YOU USE OR REFER TO PHOTONS	0	0	0	0	0	0	0	
T1202	T2-17 DO YOU USE OR REFER TO SPONTANEOUS EMISSION	0	0	0	0	0	0	0	
T1203	T2-18 DO YOU USE OR REFER TO STIMULATED EMISSION	0	0	0	0	0	0	0	
T1204	T2-19 DO YOU USE OR REFER TO COHERENCE OR INCOHERENCE	0	0	0	0	0	0	0	
T1205	T2-20 DO YOU USE OR REFER TO INVERSION LEVEL	0	0	0	0	0	0	0	
T1206	T2-21 DO YOU USE OR REFER TO MONOCHROMATIC	0	0	0	0	0	0	0	
T1207	T2-22 DO YOU WORK WITH ACTIVE MATERIALS	0	0	0	0	0	0	0	
T1208	T2-23 DO YOU WORK WITH PUMPING SOURCES	0	0	0	0	0	0	0	
T1209	T2-24 DO YOU WORK WITH FULL SILVERED (100% REFLECTIVE) MIRRORS	0	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
T1210	T2-25	DO YOU WORK WITH HALF SILVERED (92% REFLECTIVE) MIRRORS	0	0	0	0	0	0	0	
T1211	T2-26	DO YOU WORK WITH HELICAL FLASHTUBES	0	0	0	0	0	0	0	
T1212	T2-27	DO YOU WORK WITH RUBY	0	0	0	0	0	0	0	
T1213	T2-28	DO YOU WORK WITH HELIUM-NEON	0	0	0	0	0	0	0	
T1214	T2-29	DO YOU WORK WITH HELIUM-XENON	0	0	0	0	0	0	0	
T1215	T2-30	DO YOU WORK WITH XENON	0	0	0	0	0	0	0	
T1216	T2-31	DO YOU WORK WITH CESIUM-HELIUM	0	0	0	0	0	0	0	
T1217	T2-32	DO YOU WORK WITH ARGON	0	0	0	0	0	0	0	
T1218	T2-33	DO YOU WORK WITH NEODYMIUM IN GLASS	0	0	0	0	0	0	0	
T1219	T2-34	DO YOU WORK WITH GALLIUM ARSENIDE	0	0	0	0	0	0	0	
T1220	T3-01	IN YOUR PRESENT JOB DO YOU WORK WITH DISPLAY TUBES, SUCH AS DIRECT VIEW STORAGE (DVST) OR MULTIPLE MODE STORAGE TUBES (MMST)	12	9	22	13	5	8	29	
T1221	T3-02	DO YOU INSPECT DVST OR MMST	11	8	20	13	5	8	29	DISPLAY TUBES
T1222	T3-03	DO YOU CLEAN DVST OR MMST	11	8	19	13	5	8	29	
T1223	T3-04	DO YOU ADJUST OR CALIBRATE DVST OR MMST	10	8	18	12	5	8	29	
T1224	T3-05	DO YOU OPERATE SYSTEMS THAT CONTAIN DVST OR MMST	11	8	19	12	5	8	29	
T1225	T3-06	DO YOU TROUBLESHOOT DVST OR MMST CIRCUITS	10	8	18	11	4	8	29	
T1226	T3-07	DO YOU REMOVE OR REPLACE DVST OR MMST TUBES FROM MAJOR ASSEMBLIES OR UNITS	10	7	19	11	4	8	29	
T1227	T3-08	DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME THE VARIOUS ELEMENTS OF DVST	5	4	12	6	3	0	29	
T1228	T3-09	DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME THE VARIOUS ELEMENTS OF MMST	3	2	7	3	2	0	21	
T1229	T3-10	DO YOU PERFORM TASKS ON FLOOD GUNS	4	4	3	10	1	0	7	
T1230	T3-11	DO YOU PERFORM TASKS ON WRITE GUNS	4	4	3	10	1	0	7	
T1231	T3-12	DO YOU PERFORM TASKS ON ATTACK GUNS	1	0	3	1	1	0	0	
T1232	T3-13	DO YOU PERFORM TASKS ON ERASE GUNS	2	2	3	4	1	0	0	
T1233	T3-14	DO YOU PERFORM TASKS ON STORAGE GRIDS	4	4	3	9	1	0	7	
U1234	U1-01	IN YOUR PRESENT JOB, DO YOU PERFORM ANY PROGRAMMING TASKS	37	34	51	44	23	38	79	
U1235	U1-02	DO YOU USE OR REFER TO DECIMAL SYSTEMS	30	28	41	36	18	24	71	
U1236	U1-03	DO YOU USE OR REFER TO PROGRAMS	37	33	49	42	25	38	79	PROGRAMMING
U1237	U1-04	DO YOU USE OR REFER TO HEXIDECIMAL SYSTEMS	21	18	30	20	16	24	64	
U1238	U1-05	DO YOU USE OR REFER TO 8-4-2-1 SYSTEMS	20	17	32	18	11	19	64	
U1239	U1-06	DO YOU USE OR REFER TO FOUR SYSTEMS	6	5	11	7	4	5	0	
U1240	U1-07	DO YOU USE OR REFER TO BINARY SYSTEMS	36	34	45	45	22	35	71	
U1241	U1-08	DO YOU USE OR REFER TO TIME-SHARING	21	19	31	22	17	22	43	
U1242	U1-09	DO YOU USE OR REFER TO DATA WORDS	37	34	49	46	24	32	79	
U1243	U1-10	DO YOU USE OR REFER TO ADDRESS WORDS	37	34	47	44	24	35	79	
U1244	U1-11	DO YOU USE OR REFER TO ADDRESS/SUBADDRESS	30	27	42	30	19	35	71	
U1245	U1-12	DO YOU USE OR REFER TO STEERING/INFORMATION	14	10	28	12	10	16	29	
U1246	U1-13	DO YOU USE OR REFER TO INFORMATION WORDS	29	26	41	35	18	30	64	
U1247	U1-14	DO YOU PERFORM TASKS ON SINGLE LEVEL PROGRAMMING	22	19	34	25	15	22	43	
U1248	U1-15	DO YOU PERFORM TASKS ON MULTI-LEVEL PROGRAMMING	9	7	18	7	9	8	7	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 201	SPC 202	SPC 203	SPC 204	SPC 205	SPC 206	SPC 207	
U1249	U1-16 DO YOU PERFORM TASKS ON INPUT DEVICES	36	33	50	41	23	35	79	
U1250	U1-17 DO YOU PERFORM TASKS ON STORAGE DEVICES	37	33	50	43	23	38	79	
U1251	U1-18 DO YOU PERFORM TASKS ON ARITHMETIC SECTIONS	35	32	49	42	22	35	71	
U1252	U1-19 DO YOU PERFORM TASKS ON CONTROL SECTIONS	37	34	46	45	24	38	64	
U1253	U1-20 DO YOU PERFORM TASKS ON OUTPUT DEVICES	41	38	51	46	29	35	79	
U1254	U1-21 DO YOU PERFORM TASKS ON POWER SUPPLIES	37	34	49	45	26	35	79	
U1255	U2-01 DO YOU USE DECIBELS TO EXPRESS AMPLIFICATION AND ATTENUATION	23	23	23	20	25	27	7	DB AND POWER RATIOS
U1256	U2-02 DO YOU USE LOGARITHMS TO COMPUTE OUTPUT POWER IN DECIBELS	2	3	1	0	4	3	7	
U1257	U2-03 DO YOU USE LOGARITHMS TO COMPUTE ATTENUATION IN DECIBELS	2	3	1	0	4	3	7	
U1258	U2-04 DUMMY TASK TO IDENTIFY INCUMBENTS WHO PERFORMED NO TASKS	5	4	11	2	5	5	0	

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ELECTRONIC COMPUTER SYSTEMS SPECIALIST AFSC 30554.(U)
SEP 77 T J O'CONNOR, W F KASPER

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REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER: AFPT 90-30X-222	2. GOVT ACCESSION NO.: AD A044643
3. RECIPIENT'S CATALOG NUMBER:	
4. TITLE (and Subtitle): Electronic Computer Systems Specialist AFSC 30554	5. TYPE OF REPORT & PERIOD COVERED: FINAL April 77 - June 77
	6. PERFORMING ORG. REPORT NUMBER:
7. AUTHOR(s): Thomas J. O'Connor, Walter F. Kasper	8. CONTRACT OR GRANT NUMBER(s):
9. PERFORMING ORGANIZATION NAME AND ADDRESS: Occupational Survey Branch, USAF Occupational Measurement Center, Lackland AFB TX 78236	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS: N/A
11. CONTROLLING OFFICE NAME AND ADDRESS: SAME AS ITEM 9	12. REPORT DATE: 15 September 1977
	13. NUMBER OF PAGES: 44
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)	15. SECURITY CLASS. (of this report): UNCLASSIFIED
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE:

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Electronic principles
Basic electronics
Avionics
Electronic equipment
Electronic Technicians
Electronics
Air Force training
Teaching methods
Training

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report summarizes the results of the administration of the Electronic Principles Inventory to airmen assigned as Electronic Computer Systems Specialist (AFSC 30554). The report gives a detailed listing of the technical tasks and knowledge needed to perform the jobs within the specialty or career ladder.

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AD A044643

This specialty has the following functions:

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